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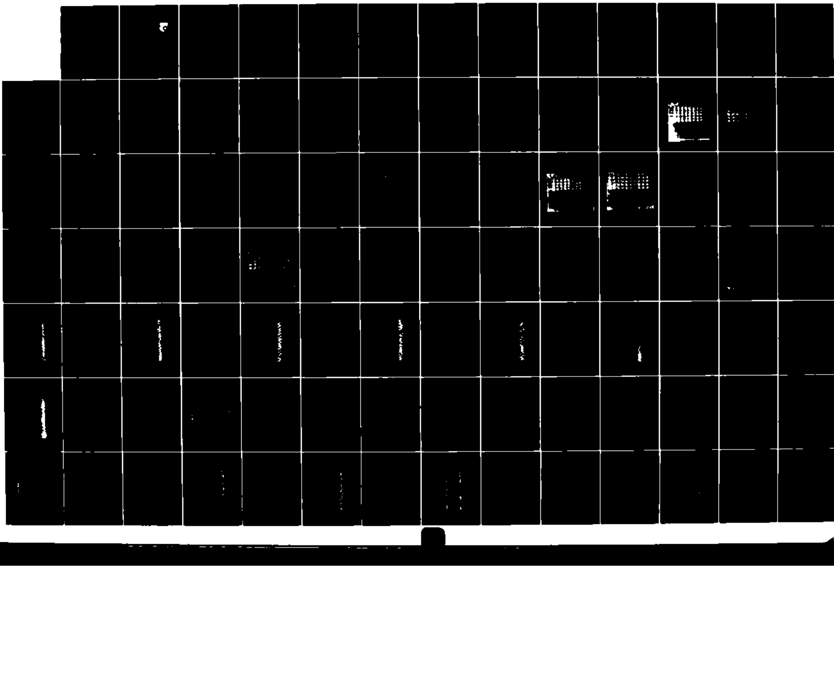

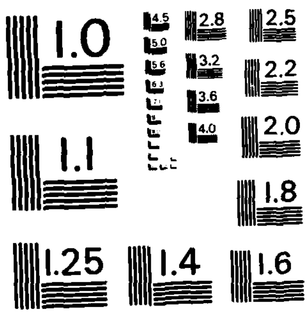

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Part I

COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES

PART I. PARAMETRIC TEST DATA

D. L. Davis

July 1981

Interim Report for Period February 1979 - March 1980

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AERO PROPULSION LABORATORY
AIR FORCE WRIGHT AERONAUTICAL LABORATORIES
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DOUGLAS L. DAVIS
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Ramjet Technology Branch

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FOR THE COMMANDER

JAMES D. JOHNSON, Col, USAF
Ramjet Engine Division
Aero Propulsion Laboratory

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report contains Combustion Instability Data for Coaxial Dump Ramjet Combustors. The data includes pressure vs. time, RMS pressure spectrums, peak and broadband RMS pressures, and related steady state performance data. Analysis and interpretation of the data are reserved for future reports. Also included is a description of RMS pressure and its relation to wave shape.

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FOREWORD

This report was prepared by D. L. Davis of the Ramjet Technology Branch, Ramjet Engine Division, Aero Propulsion Laboratory, Air Force Wright Aeronautical Laboratories (AFWAL/PORT), Wright-Patterson Air Force Base, Ohio 45433. The work was accomplished under Task 2308S1, "Ramjet Research".

The report covers work performed from February 1979 to March 1980.

The author wishes to thank Dr. Roger R. Craig, Kenneth G. Schwartzkopf, Parker L. Buckley, Capt B. Obleski, Robert Schelenz and Steve Campbell for their support of this effort.

This report is Part I of a two part series on Ramjet Combustion Instabilities. Part II will contain additional data on other Ramjet configurations with some analysis of the data.

This report was submitted for publication by the author in April 1981.

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SECTION I

INTRODUCTION

Under certain operating conditions and with certain engine configrations, there have been adverse interactions between the ramjet combustor and inlet caused by combustion instabilities occurring in the ramjet combustor. In order to provide a data base for guidance in avoiding combustion instabilities, a series of parametric tests of coaxial dump combustors was conducted at the Air Force Wright Aeronautical Laboratories, Aero Propulsion Laboratory, Ramjet Engine Division. This report summarizes the data from these tests. Analysis and interpretation of the data is reserved for future reports.

SECTION II

PARAMETRIC VARIATIONS

The conditions tested included variations in fuel to air ratio, type of fuel injection, air inlet temperature, air flow rate (combustion chamber pressure), nozzle area ratio, length to diameter ratio (L/D) of the combustor, type of flameholder, inlet diameter, and combustion chamber diameter.

For each combustion chamber diameter, inlet diameter, flameholder, and type of fuel injection, a baseline condition was chosen from which other variations were tested. For the baseline condition, the inlet air temperature was 1000°R (T_{To}=1000°), the mass flow was set to obtain a chamber pressure times diameter product of 200 PSI*inches (P*D=200 lbs/in), the nozzle throat area was 50% of the combustion chamber cross sectional area (A^*/A_3=.5) and the combustion chamber length to diameter ratio was three (L/D=3).

All of the parametric variations for this series of tests are indicated in Table 1.

TABLE 1

COMBUSTION INSTABILITY PARAMETRICS

COMBUSTION CHAMBER DIAMETERS (D3)	INLET DIAMETERS (D2)	FLAME HOLDERS	OTHER VARIATIONS	FUEL INJECTORS	FUEL TO AIR RATIO
12 in.	.67*D3	NONE	BASELINE	TUBE WALL	.065 to .025
8 in.	.59*D3	.25Y	$T_{To}=750^o$	UNIFORM	in .005 steps
6 in.	.5*D3	.35Y	$T_{To}=1250^o$		and with no fuel
			PD=120 PSI*in.		
			$A^*/A_3=.4$		
			$A^*/A_3=.6$		

SECTION III

HARDWARE

All testing was conducted at Wright-Patterson AFB, Building 18C, Room 18 on the Ramjet Engine Division's Thrust Stand. Test air was supplied by the Aero Propulsion Laboratory's DeLaval and Ingersoll-Rand Compressors. The air, after passing through an orifice flowmeter, enters the thrust stand through twelve flex hoses. The air was then heated with oxygen replenishment in a modified J85 combustion chamber using ethylene for fuel. A tubular flow straightener and the uniform fuel injectors were located downstream of the vitiator in a six inch pipe section. The inlet and combustion chamber were then fastened to the six inch pipe. A water cooled sonic nozzle was attached to the combustor and inserted into the exhauster (see Figure 1). Kistler Model 202A5 high frequency piezoelectric transducers were mounted on the inlet, the combustor and fuel manifold (see Figure 2). The charge from the Kistler transducers was converted to voltage with Kistler Model 587D couplers and then recorded on an Ampex F1300, 14 track FM tape recorder. After testing, the tape was played back into a Nicolet 660A FFT for spectral analysis.

The two types of fuel injectors used were uniform injectors and tube injectors. The uniform fuel injectors consist of eight tubes with multiple openings to provide a uniform distribution of fuel. The uniform injectors are located far upstream of the combustor to allow total vaporization of the fuel. The tube fuel injectors consist of tubes with an orifice located on the end pointing normal to the inlet centerline and the end is mounted flush with the inlet wall (see Figure 4). The orifice was sized to obtain a fuel penetration proportional to the inlet diameter at the dump plane (see Table 2).

The flameholders for these tests were of the 'Y' configuration and had blockage areas of 25% and 35% of the inlet area. Dimensions of the flameholders can be found in Table 3.

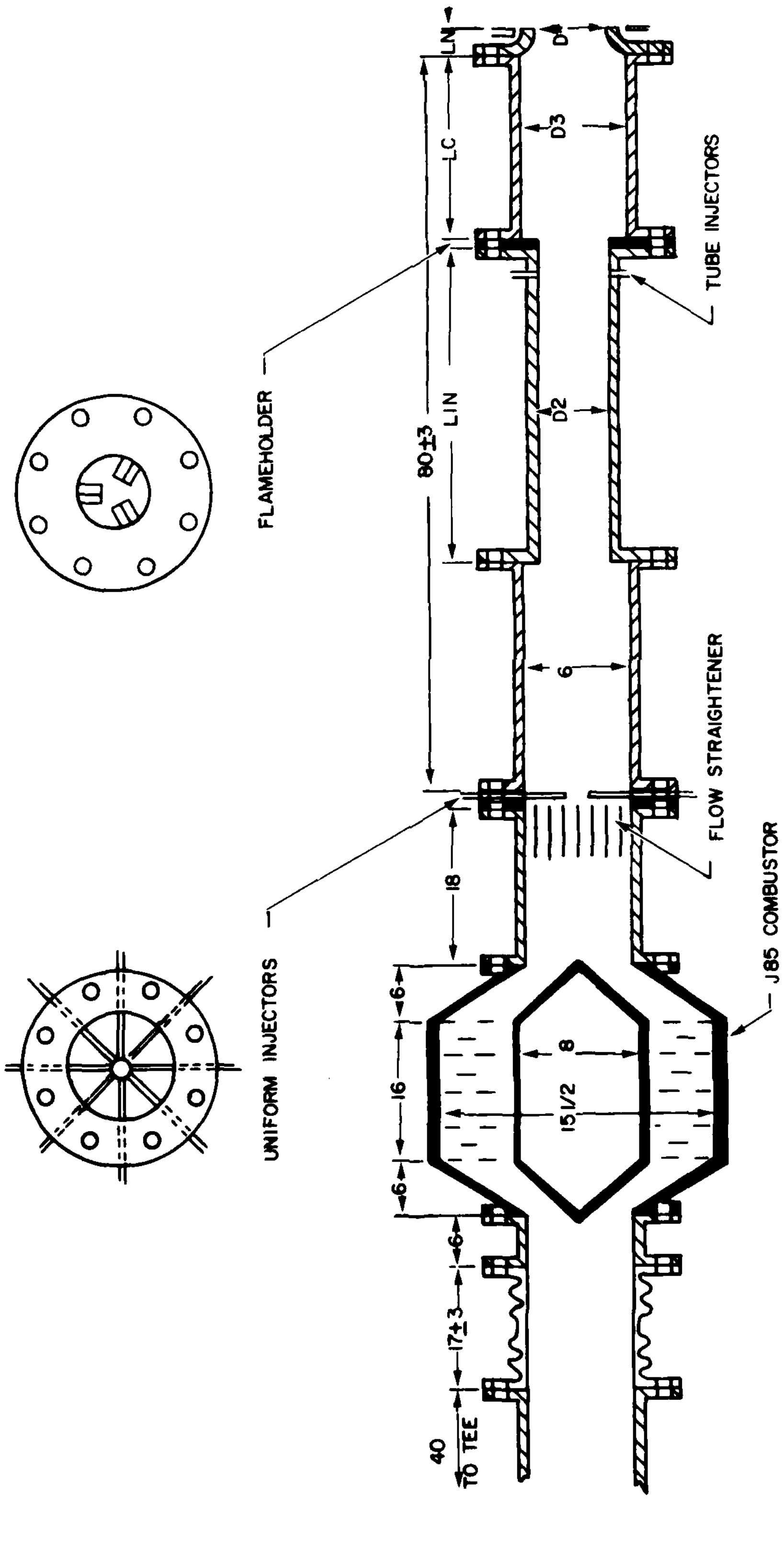


Figure 1. Thrust Stand Hardware

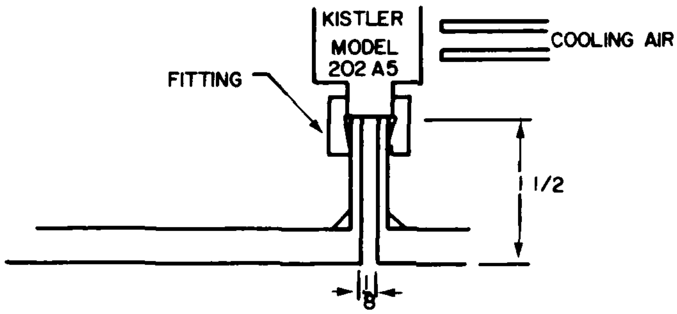


Figure 2. Kistler Installation

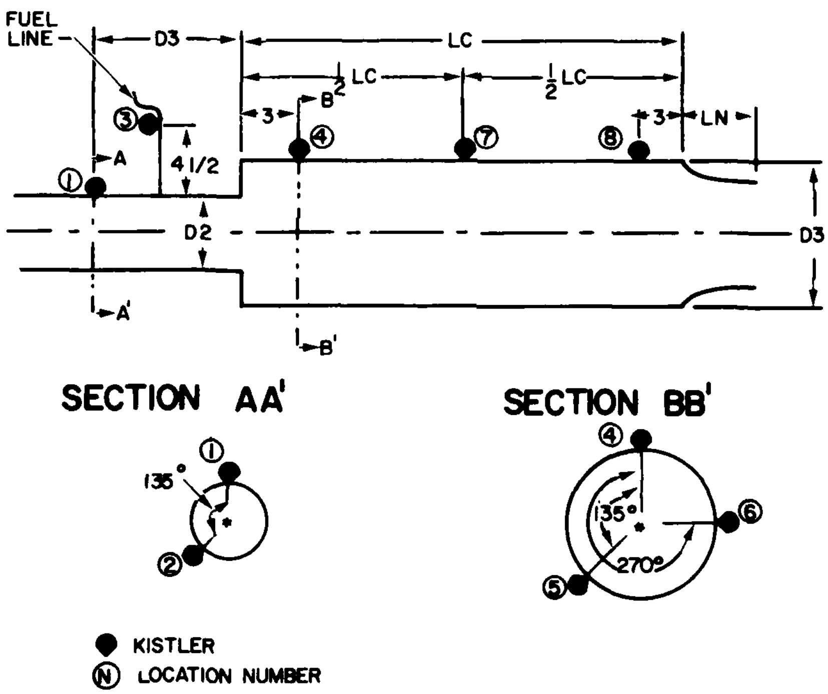


Figure 3. Pressure Transducer Locations

TABLE 2

FUEL INJECTOR AND INLET DIMENSIONS

all dimensions in inches

D3	D2	LIN	d_f	d_u
6.	3.	36.	.046	4.0
6.	3.5	36.	.052	4.0
6.	4.	36.	.059	4.25
8.	4.	24.	.052	4.5
8.	4.75	24.	.059	4.25
8.	5.375	24.	.068	4.5
12.	6.	36.	.059	4.75
12.	7.	36.	.068	4.5
12.	8.	16. to 23.	.077	4.5

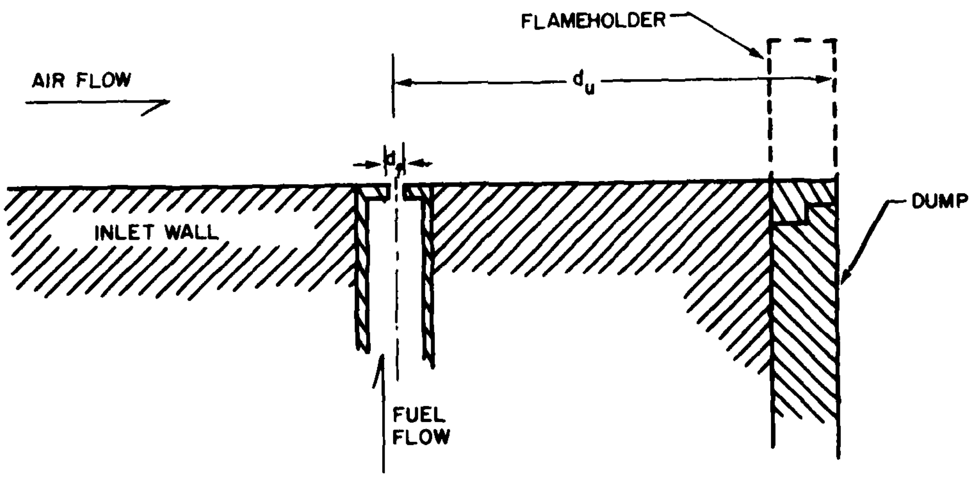
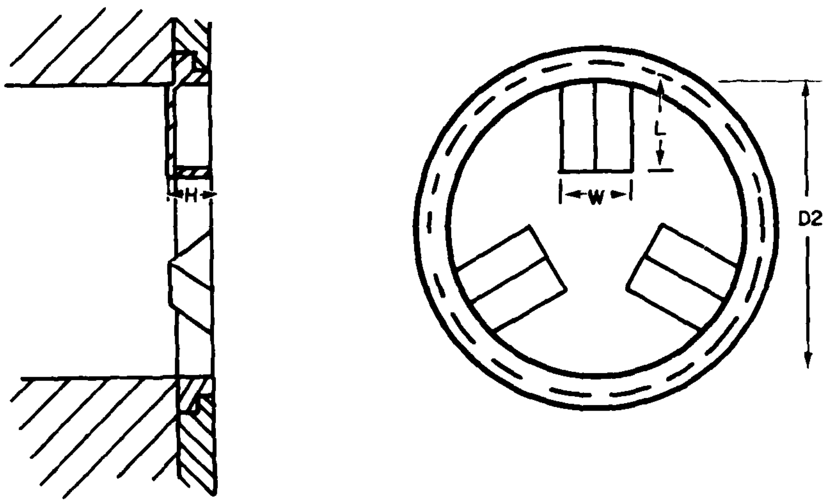


Figure 4. Orifice Fuel Injector

TABLE 3

FLAME HOLDER DIMENSIONS



D3 (in)	D2 (in)	BLOCKAGE (%)	W (in)	L (in)	H (in)
6.	3.	25	.64	.94	.27
6.	3.	35	.64	1.27	.27
6.	3.5	25	.75	1.07	.40
6.	3.5	35	.75	1.50	.40
6.	4.	25	.87	1.20	.49
6.	4.	35	.88	1.70	.50
8.	4.	25	.84	1.28	.44
8.	4.	35	.84	1.80	.45
8.	4.75	25	1.13	1.35	.70
8.	4.75	35	1.13	1.85	.70
8.	5.375	25	1.26	1.50	.81
8.	5.375	35	1.26	2.13	.83
12.	6.	25	1.26	1.90	.80
12.	6.	35	1.27	2.65	.90
12.	7.	25	1.64	2.00	1.10
12.	7.	35	1.65	2.80	1.15
12.	8.	25	1.75	2.45	1.24
12.	8.	35	1.75	3.28	1.24

SECTION IV

OSCILLOGRAPHS AND PERFORMANCE DATA

This section contains graphic combustion instability data as it appears on the Nicolet 660A along with the steady state performance data for eight files. The data were taken from eight files with an eight inch diameter combustor, 24 inches long, with a 4.75 inch diameter inlet and includes files with no flameholder and the .25Y flameholder, uniform and .059 orifice wall fuel injectors, and variations from the baseline of 750°R inlet air temperature and nozzle area ratio of 40%.

The performance data for each file is presented in two sets. One set contains the raw data and the other set contains the reduced data.

The instability data is presented in two oscillographs for each record. The unsteady pressure, as a function of time, is presented in one oscillograph with the instant spectrum (Fourier Transform or RMS Spectrum) in the other oscillograph. The scale on the oscillographs is in PSI and RMS-PSI, respectively.

A description of RMS pressure can be found in the Appendix and a description of the terms used in this section precedes the data.

1. TERMS IN REDUCED DATA LISTINGS

WD6	-	Air flow thru 6" line, lb/sec
TT5I	-	Ideal total temp. of ramjet, °R
WDØ2	-	Oxygen makeup for vitiating heater J-85, lb/sec
WD2	-	Backside heater flow, N/A
WA3	-	Air flow thru 3" line to thrust stand, lb/sec
TT5-F	-	Ramjet total temperature computed from thrust, °R
WDFJ85	-	C_2H_4 flow to J-85, lb/sec
QDØTT	-	Heat loss to water cooled nozzle and combustor, BTU/sec
WF	-	JP-4 fuel flow to ramjet, lb/sec
TT5-P5	-	Ramjet total temperature computer from combustor wall press, °R
J85F/A	-	f/a of vitiator
EFFJ85	-	combustion efficiency of J-85
F/A	-	Ramjet fuel-air
ETAC-F	-	Ramjet Combustion efficiency from thrust
ETAC-J85	-	corrected for J-85 inefficiency
ETACC-J85	-	corrected for J-85 and water cooling
TTO-R	-	Thermocouple measurement of J-85 temp., °R
TMAX	-	computed ideal J-85 temp., °R
ETAC-P5	-	Ramjet combustion efficiency computed from comb. static pressure
ETACC-P5	-	corrected for J-85 and water cooling
P5	-	Combustor static pressure, Psia
F6	-	10% of this number is subtracted from thrust
EQUIV RATIØ	-	f/a over f/a stoichiometric
MEX	-	Exit Mach number of nozzle

PT2C	-	Inlet total pressure calculated from P static inlet (PsI) and M2C
M2C	-	Inlet Mach number from mass flow, total temp. and static pressure
PEX	-	Exhauster pressure Psia
E26	-	A blow out parameter
PT5C	-	Combustor total pressure computed from TT5-F, air flow, & A* with $C_D = 1$
PT5/PT2	-	PT5C/PT2C
SAM/T1**.5	-	$Sa^*/\sqrt{T_{To}}$ & $Sa^* = \frac{\text{vacuum thrust}}{\text{Airflow}}$

2. TERMS IN RAW DATA LISTINGS

DPEX - (Ambient-exhaust) pressure, psi

DP3 - ΔP across sharp edged orifice (3" dia.), psi

DP6 - ΔP across 6" orifice, psi

F - Load cell reading, lbs

PAMB - Ambient pressure, psia

PCI - Chamber static pressure, psia

PC2H4 - C_2H_4 pressure, psia

PO2 - O_2 pressure, psia

PSI - Inlet static pressure upstream of fuel injector, psia

PS6 - A static pressure used to compute F6, psia

P3 - Pressure upstream of 3" orifice plate, psia

P6 - Pressure upstream of 6" orifice plate, psia

Pnnnmm - Chamber static pressure nnn° from the top of the chamber and mm inches from the dump, psia

TC2H4 - C_2H_4 temp., °R

TIME - Absolute time of day - seconds

TI000, TI090, T1270 - J-85 outlet temp., °R at 0°, 90°, and 270°

TNIN - Nozzle inlet water temp., °R

TNOUT - Nozzle outlet water temp., °R

TO2 - O_2 temp., °R

T3 - Air temp. at 3" orifice plate, °R

T4 - Air temp. upstream of J-85

T6 - Air temp. at 6" orifice plate, °R

Tnnnmm - Chamber thermocouple at nnn° and mm", °R

WFH - Fuel flow to ramjet, lb/sec

WH2O - Nozzle water flow, lb/sec

WJ85 - C_2H_4 flow to J-85 - ACFM

WO2 - O_2 flow, Hz from vortex shedding flow meter

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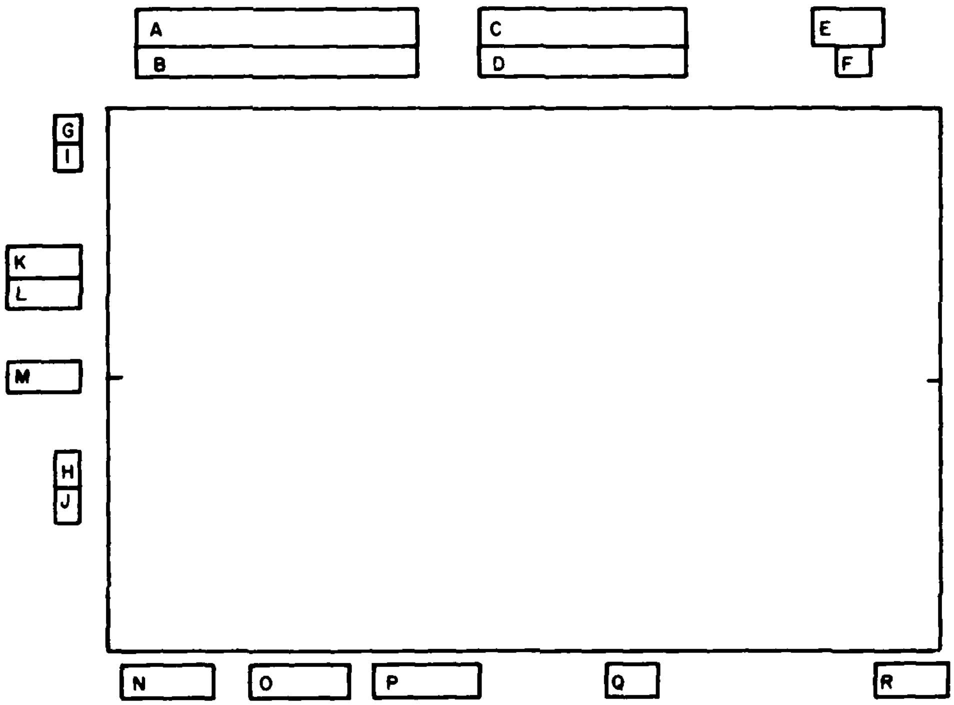
3. DESCRIPTION OF OSCILLOGRAPHS



A - ENTRY FIELD - FIRST 6 DIGITS - DATE DATA WAS RECORDED (MONTH/DAY/YEAR)

- NEXT 2 DIGITS - TRANSDUCER LOCATION NUMBER

1 = D3 BEFORE DUMP (D3 = 8")

4 = 3" AFTER DUMP

- NEXT 2 DIGITS - FILE OF DATA

- EXPONENT - RECORD OF DATA

B - BLANK

C - ORDINATE TOP OF SCALE FOR TOP GRAPH - E = PSI

D - ORDINATE TOP OF SCALE FOR BOTTOM GRAPH - E = PSI

E - *TYPE OF ORDINATE AXIS - VLN = VOLTS LINEAR*

F - SIGNAL TYPE - C = CONTINUOUS

G - TOP GRAPH - A = CHANNEL A

H - BOTTOM GRAPH - B = CHANNEL B

Figure 5. Location of Oscillograph Description Fields

I & J* - GRAPH COMPONENT - R = REAL

M = MAGNITUDE

K - TYPE OF AVERAGING - NOT USED

L - NUMBER OF AVERAGES - NOT USED

M - PLOT TITLE - IT = INSTANT TIME

IS = INSTANT SPECTRUM

N - INPUT MAXIMUM VOLTAGE FOR CH. A - T = TEST

A = AC

D = DC

O - INPUT MAXIMUM VOLTAGE FOR CH. B

P - TRIGGER LEVEL - FRACTION OF MAX. VOLTAGE FOR CH. SPECIFIED

Q - UNITS OF ABSCISSA

R - MAGNITUDE OF ABSCISSA

*NOTE - FOR 'M' ZERO IS AT BOTTOM OF EACH GRAPH AND FOR 'R' ZERO IS ON THE MIDDLE OF THE ORDINATE OF EACH GRAPH

4. DATA LISTINGS AND OSCILLOGRAPHS

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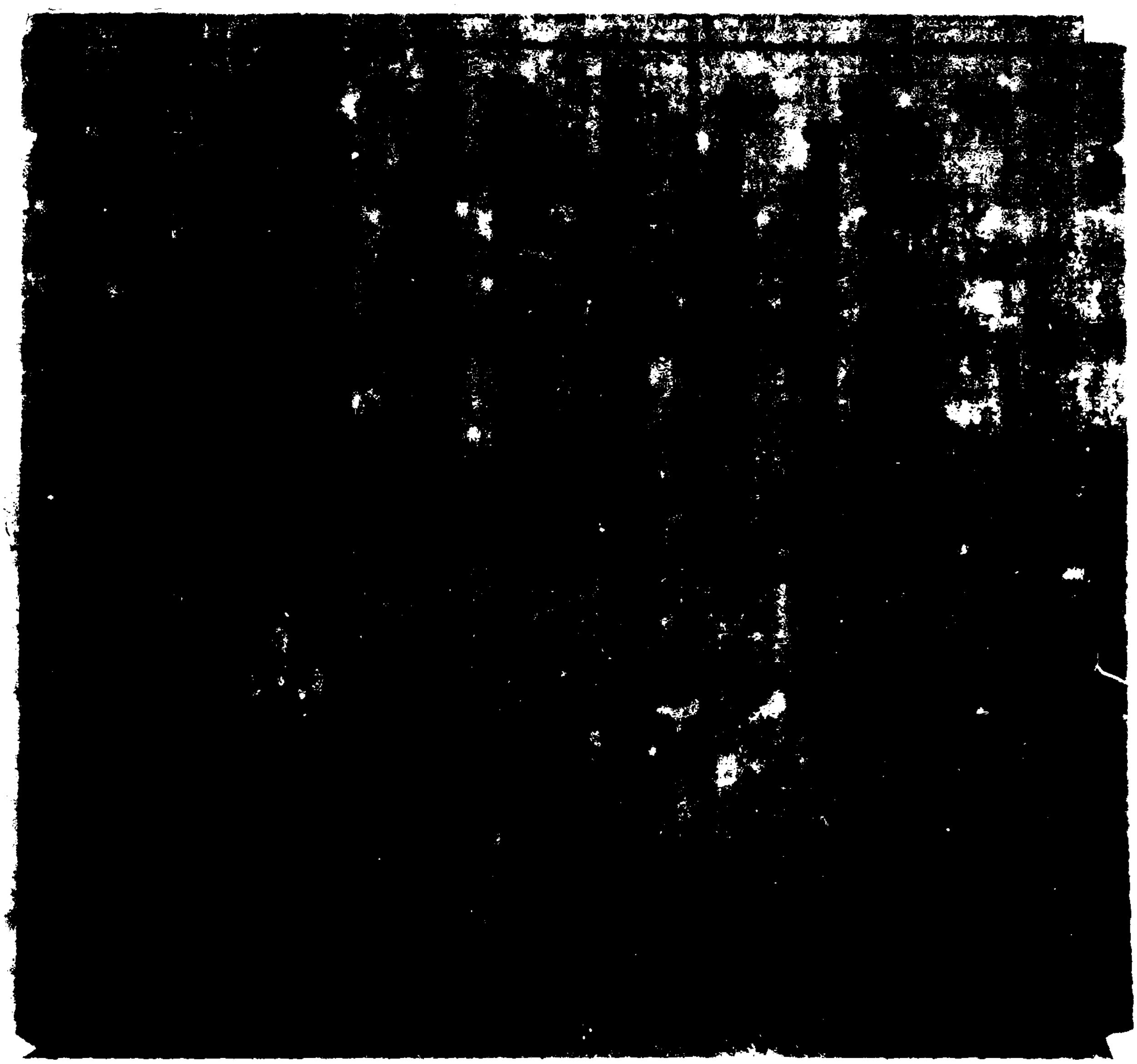

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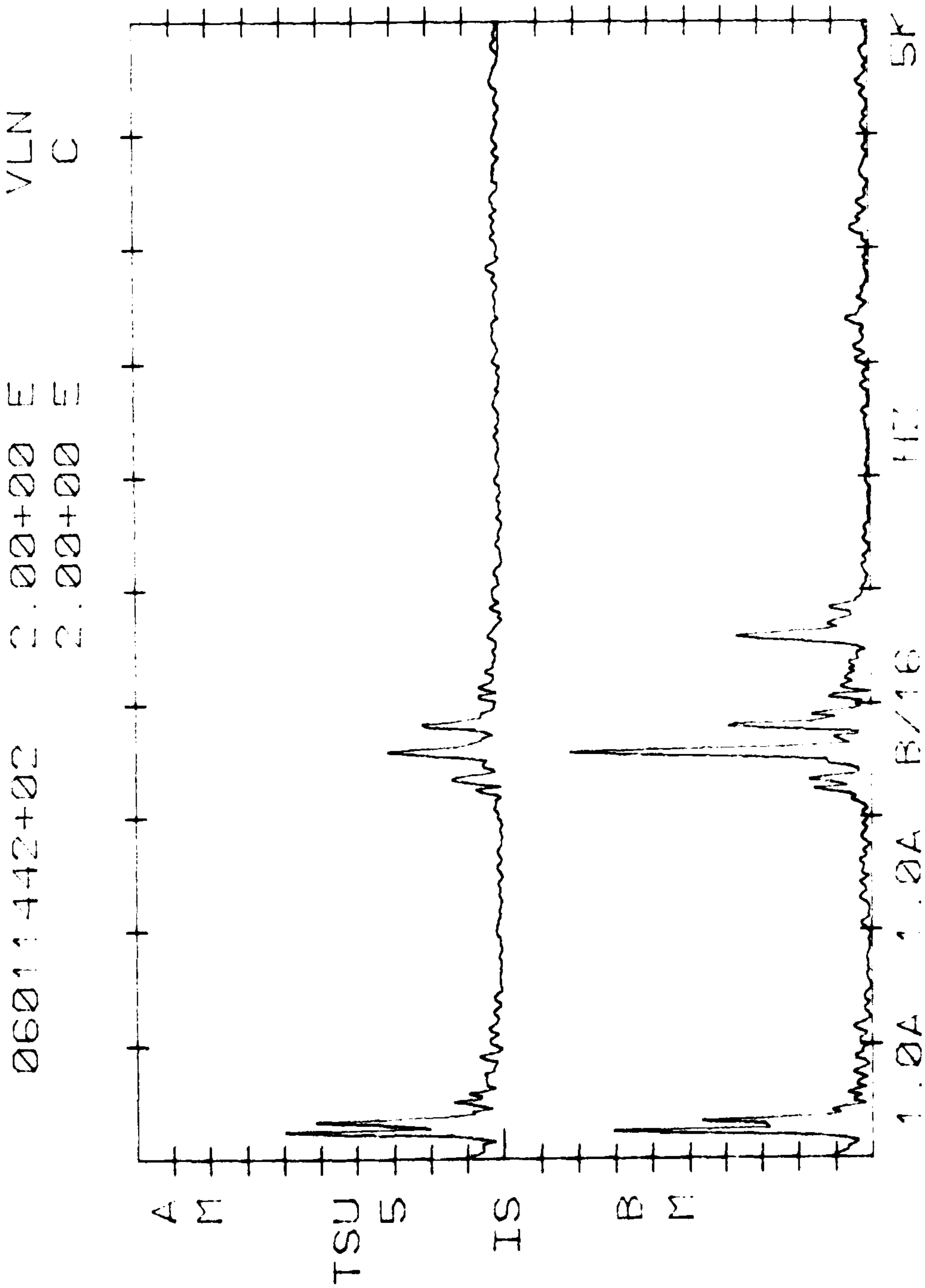
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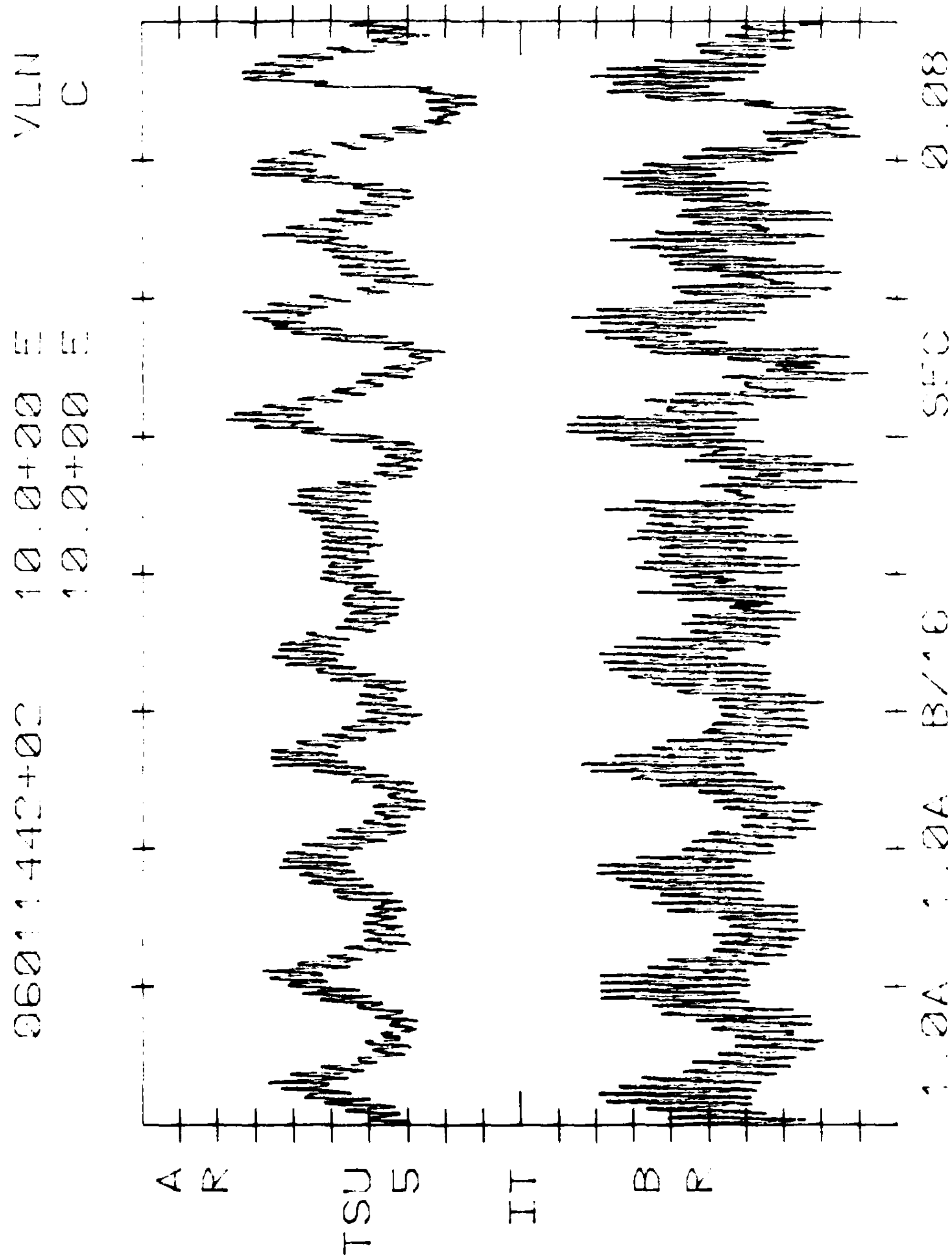

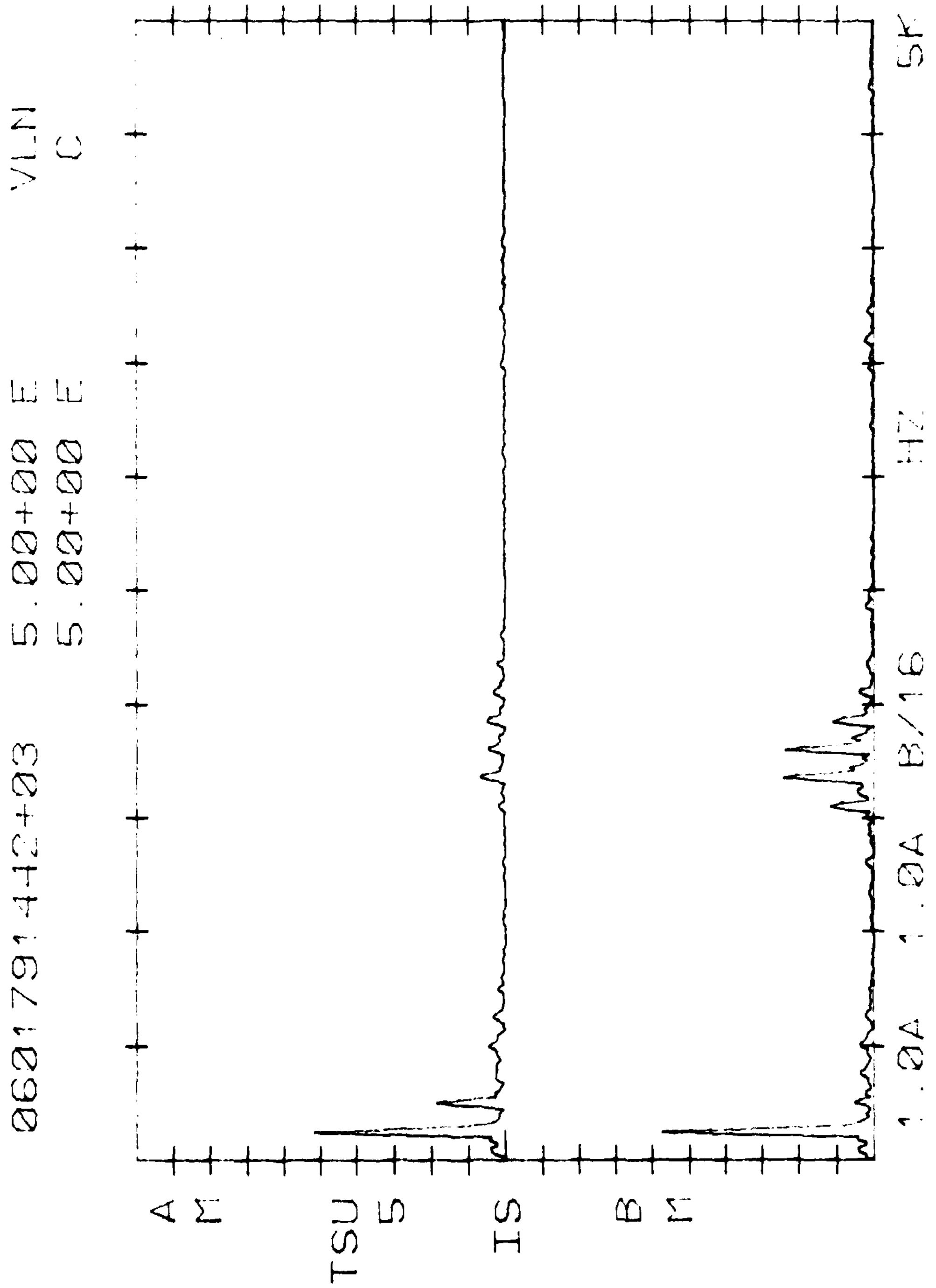
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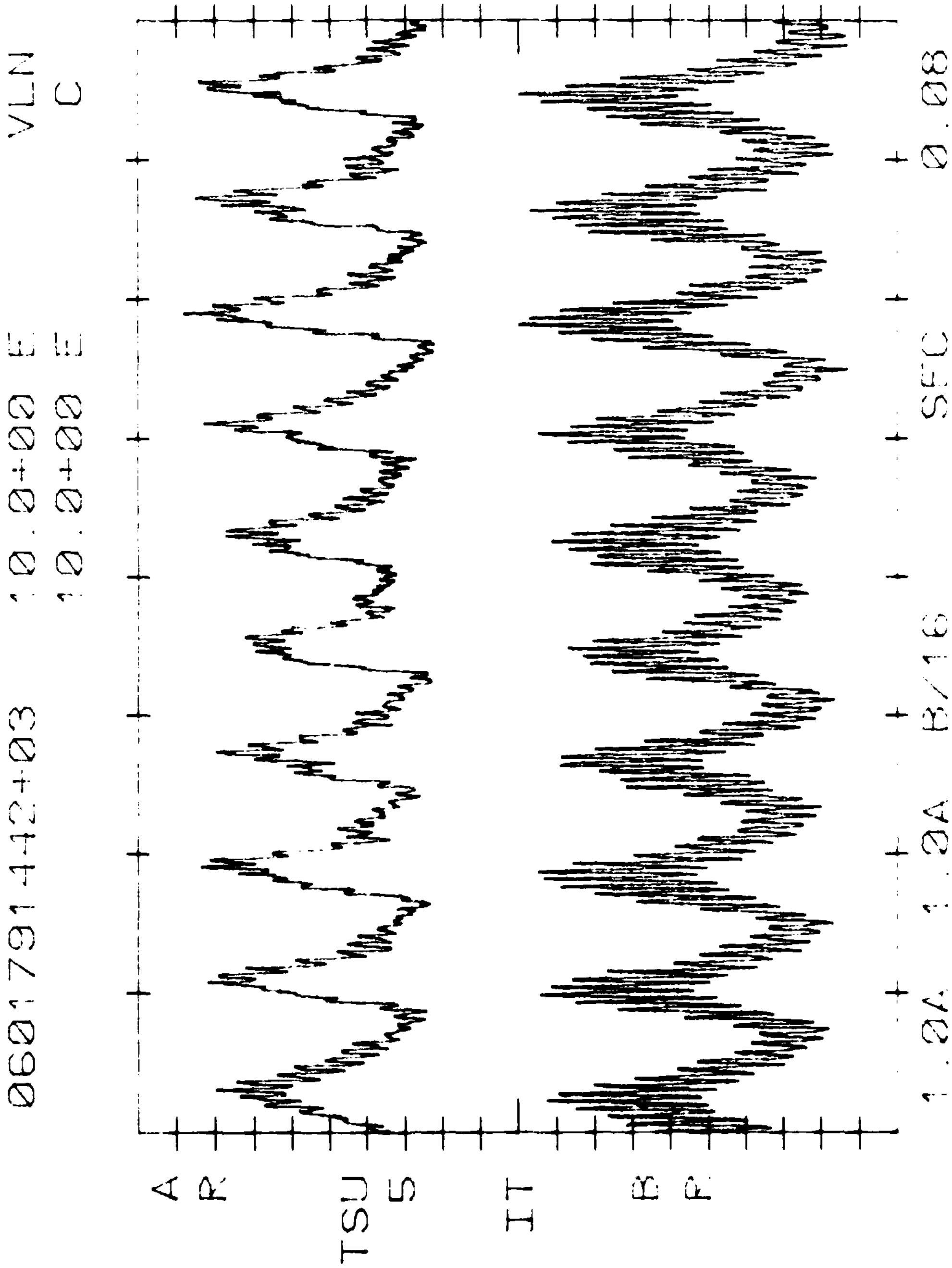
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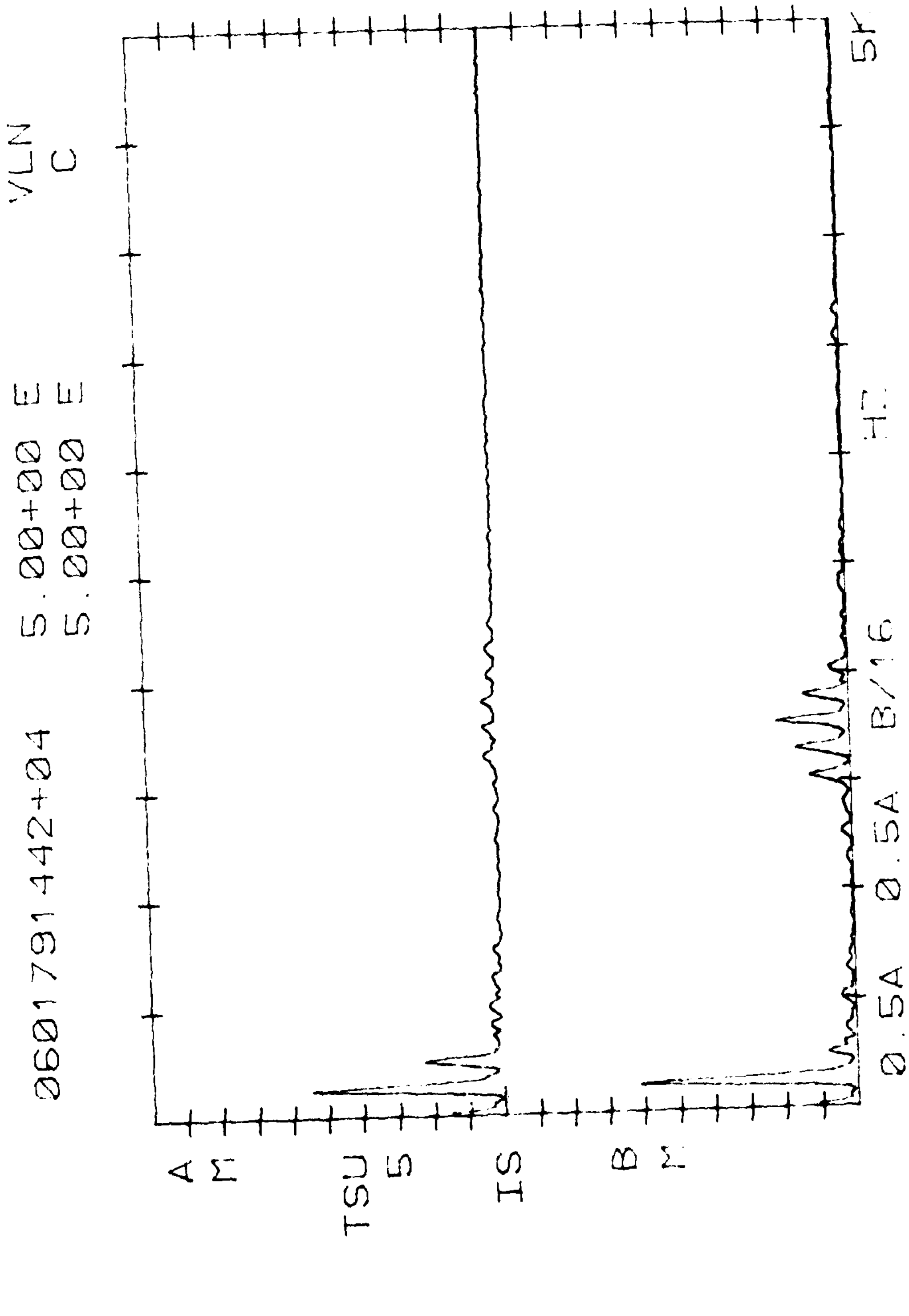
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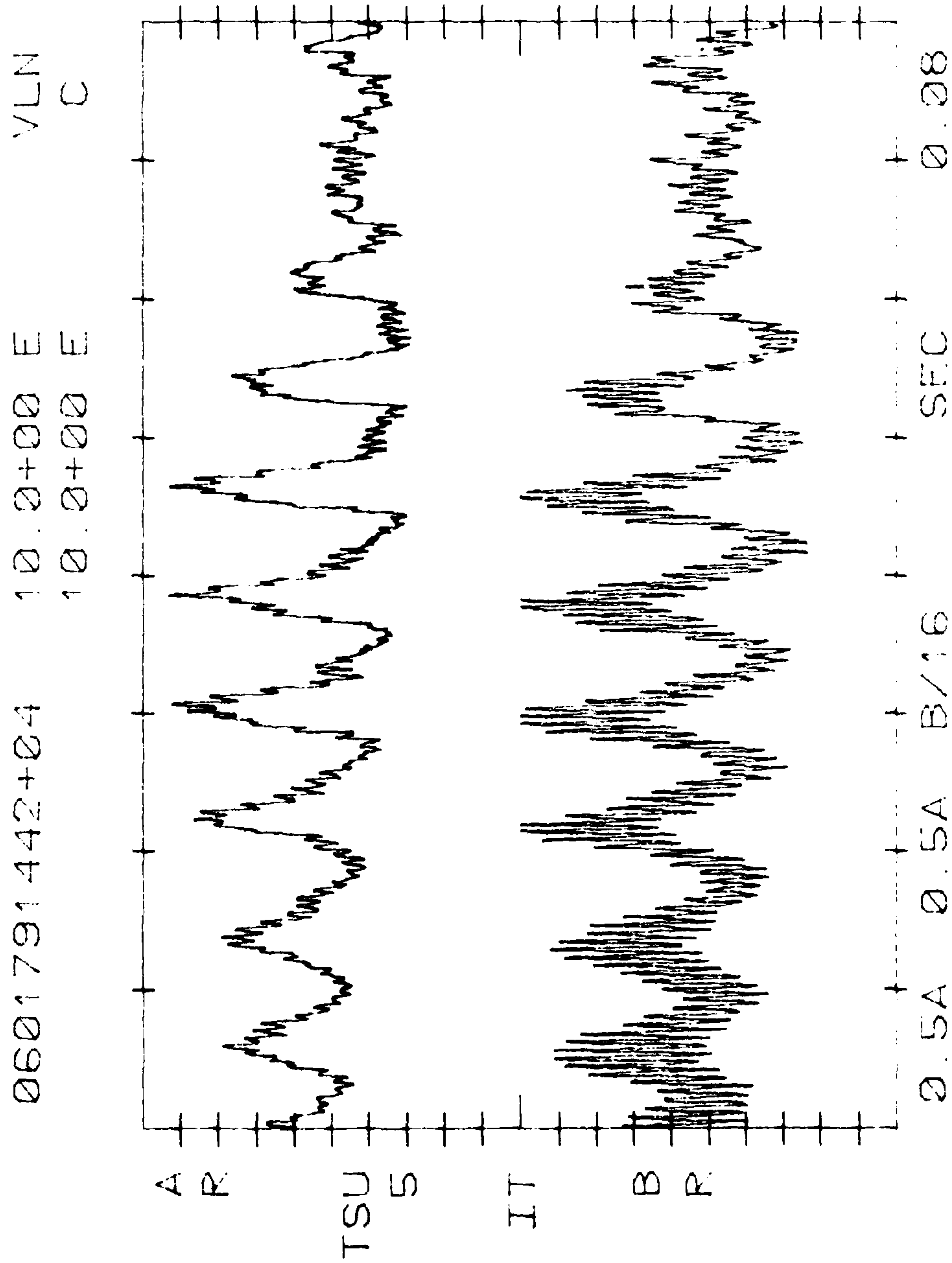
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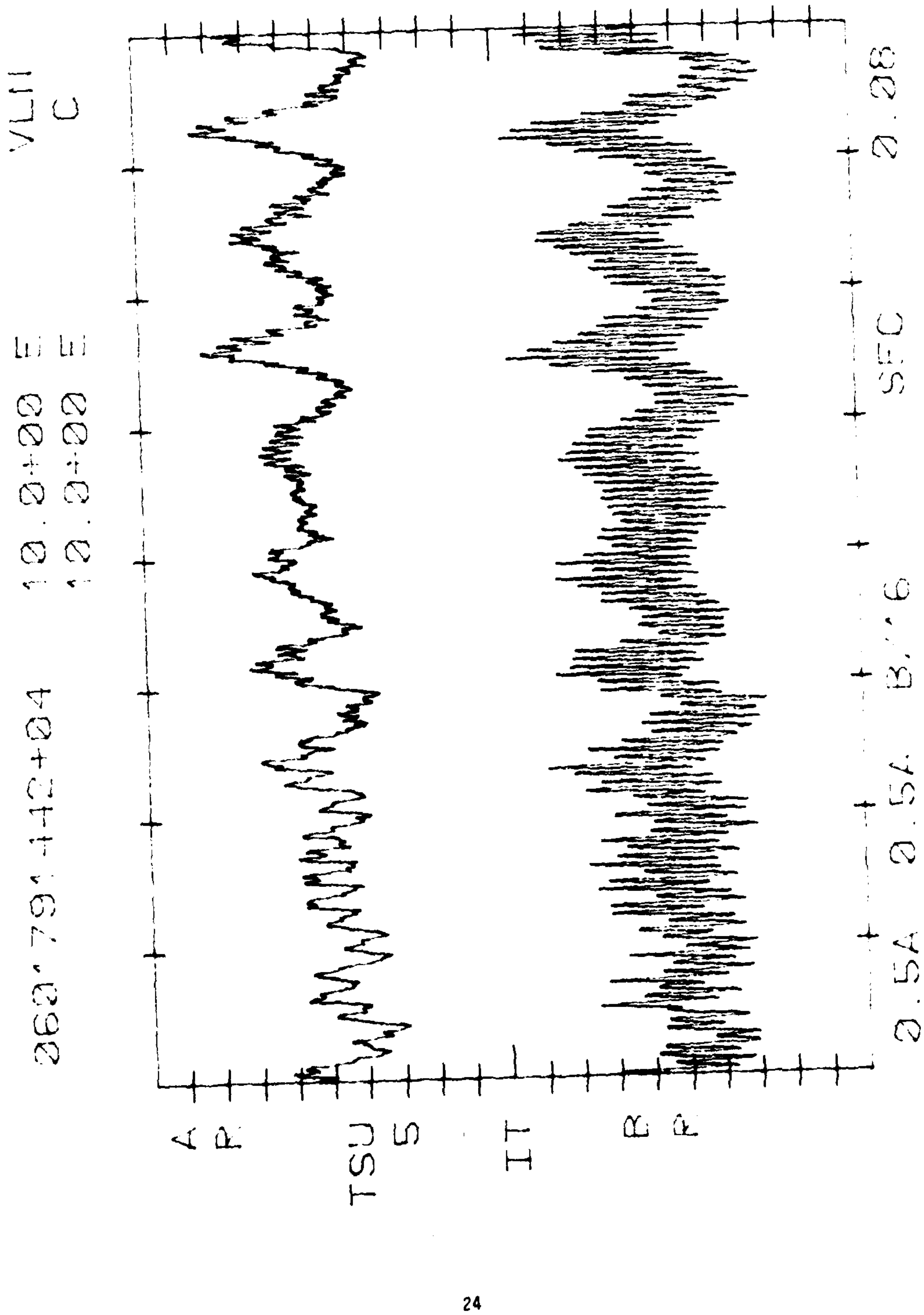

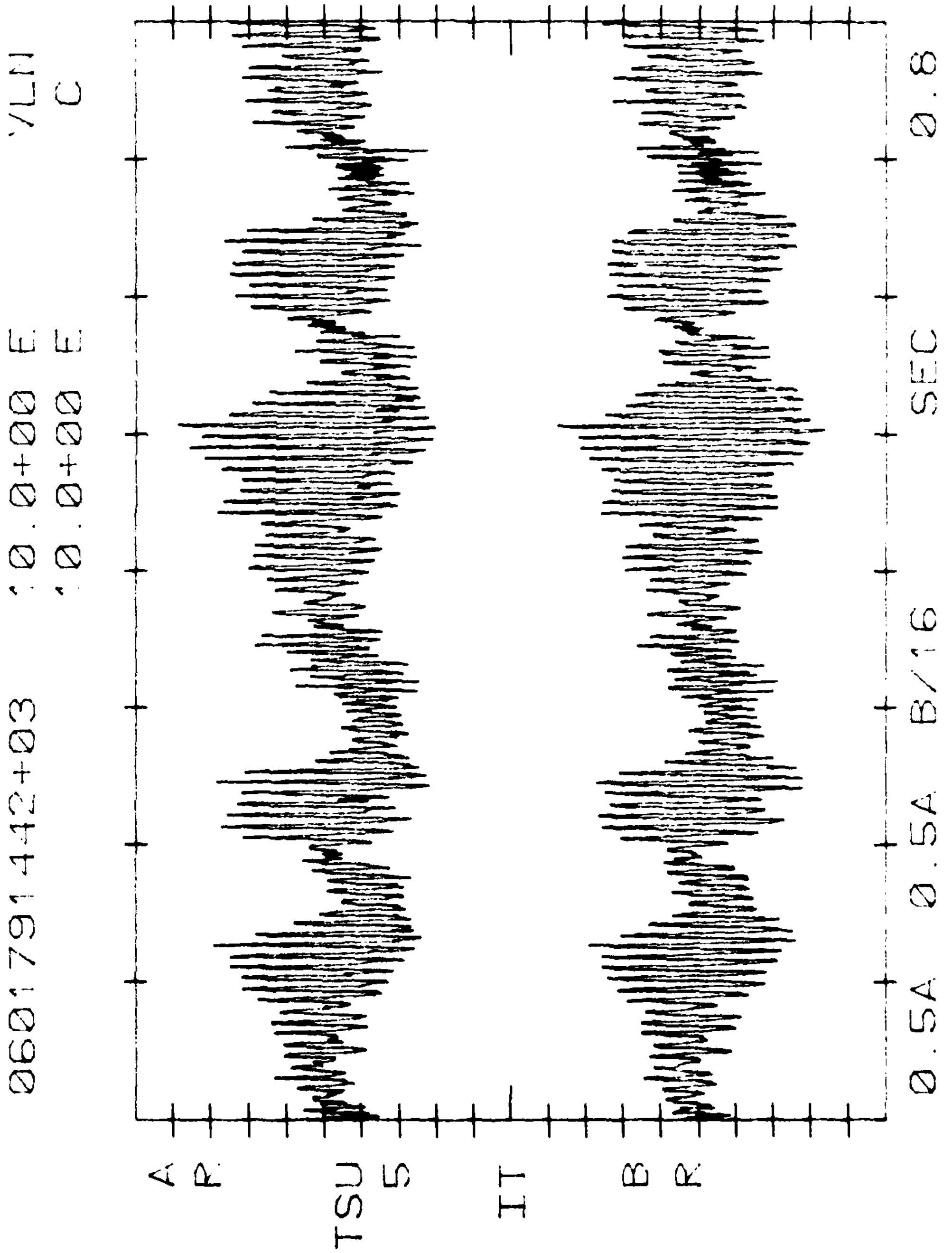
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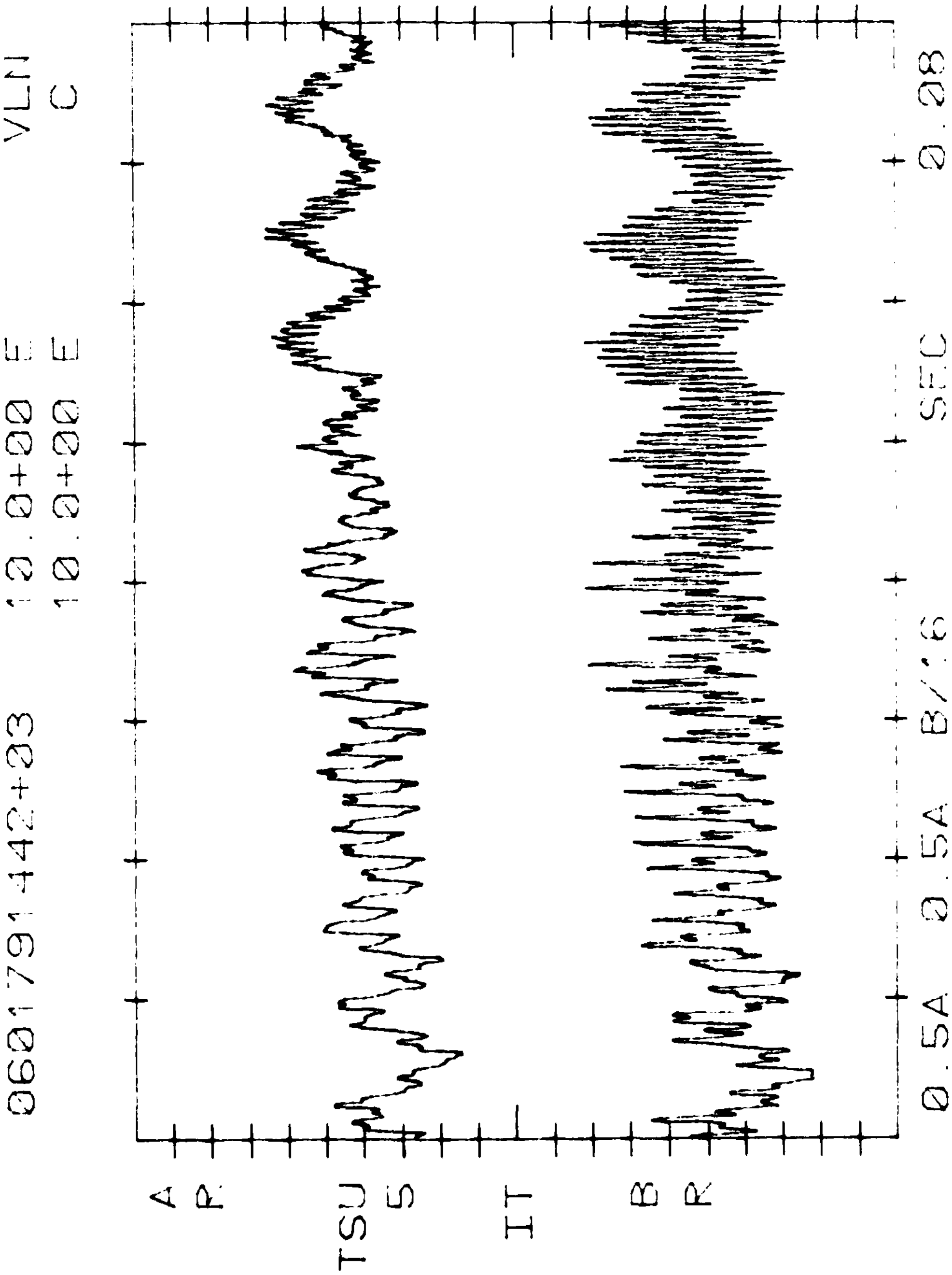
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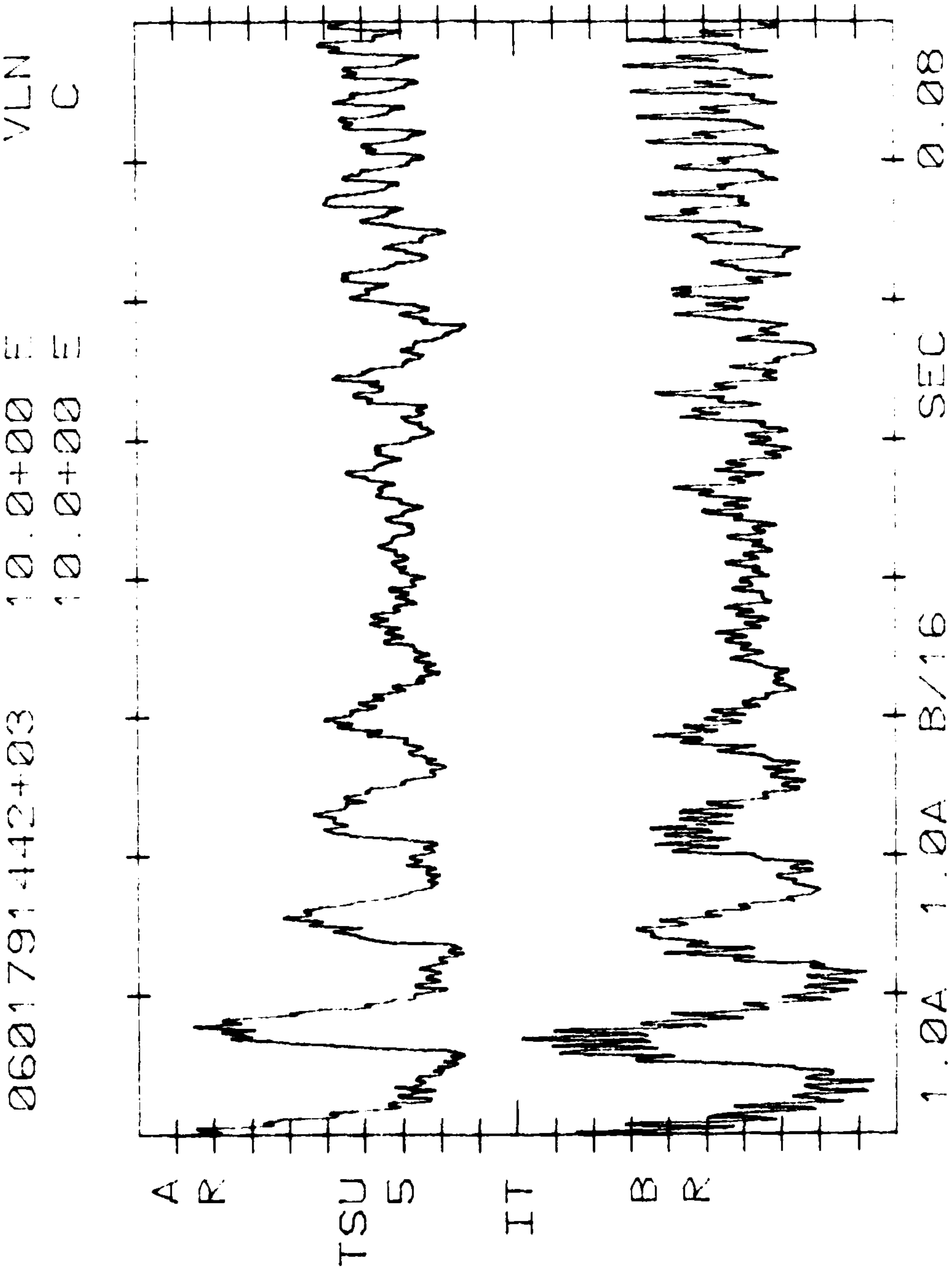
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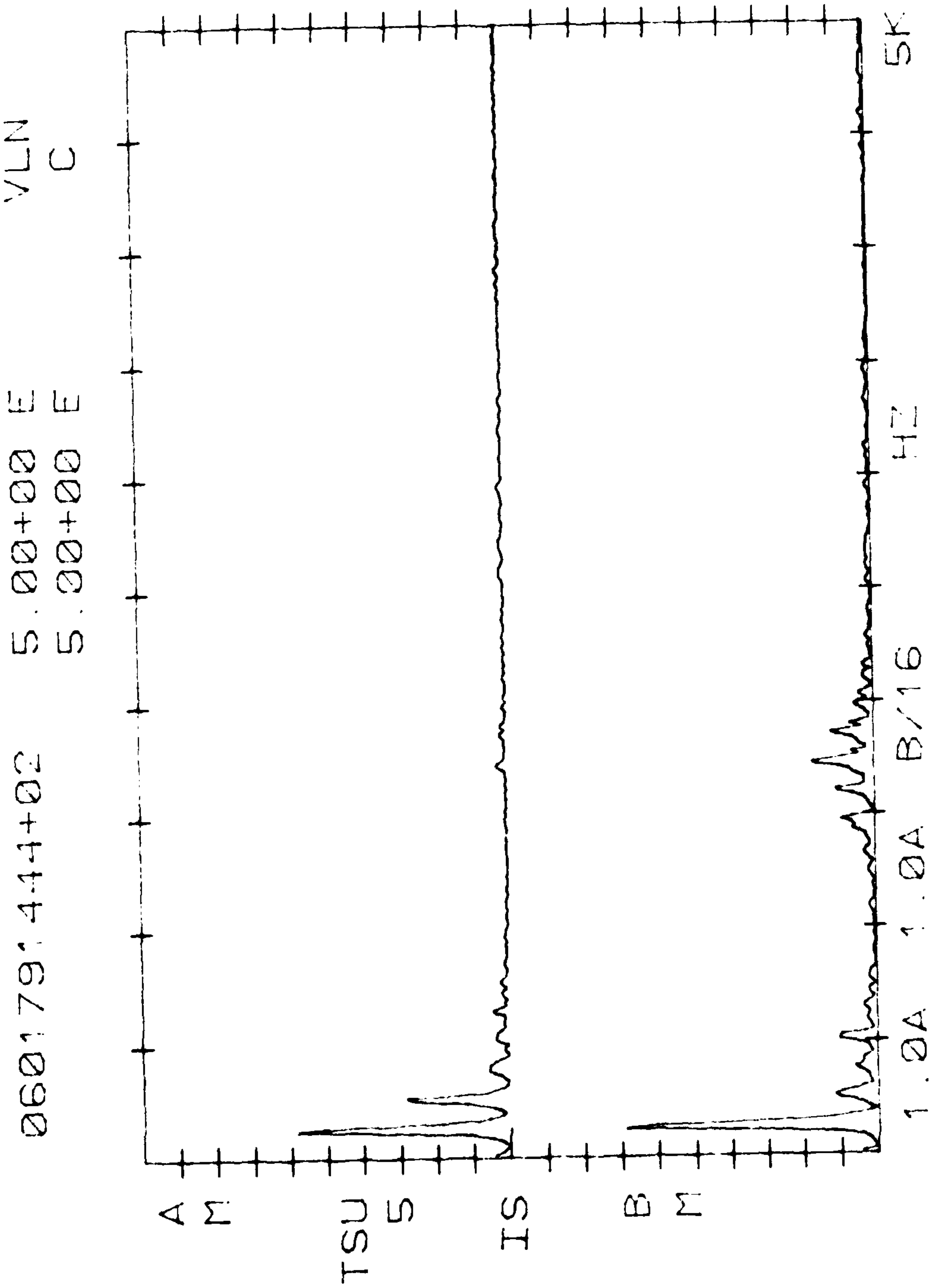
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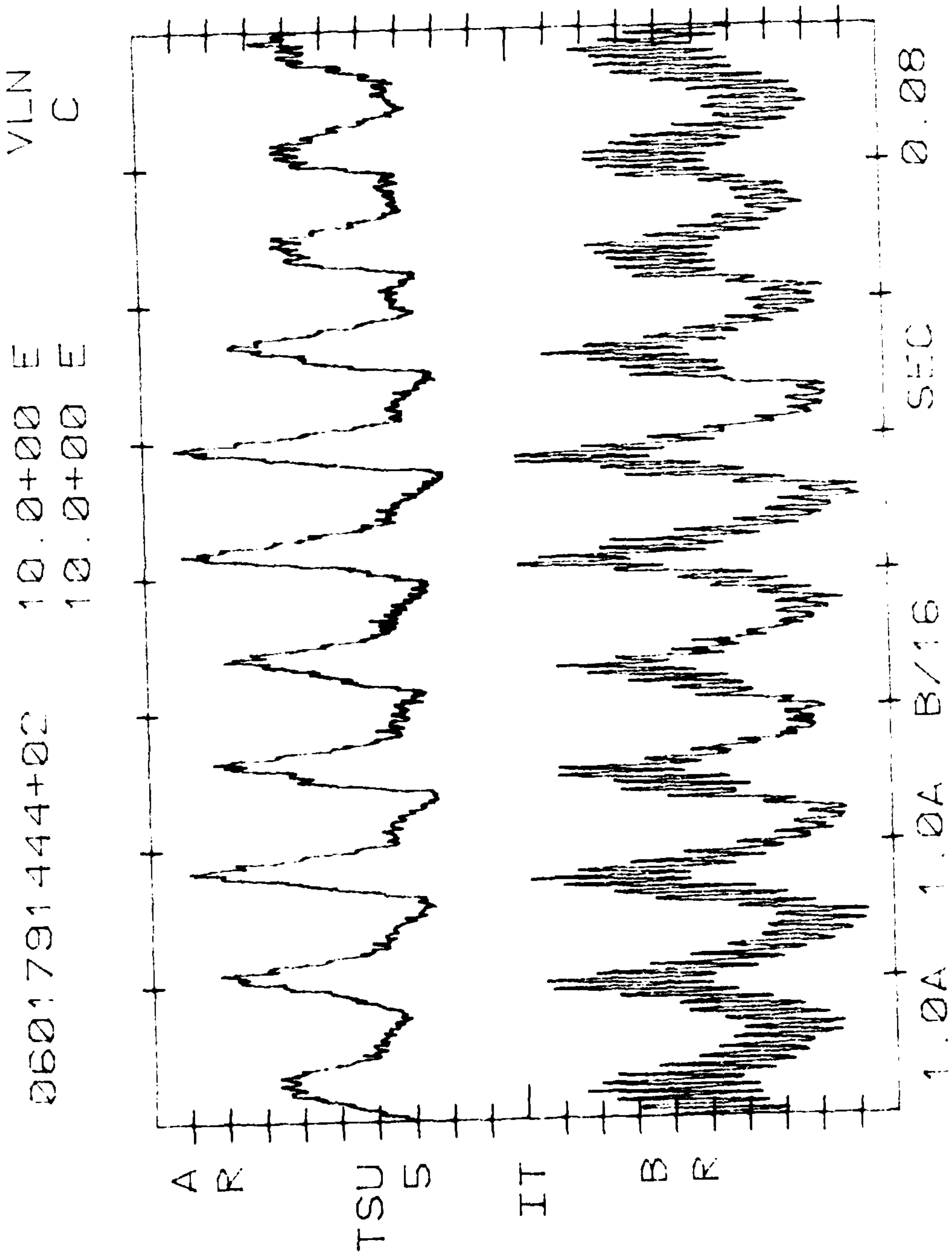
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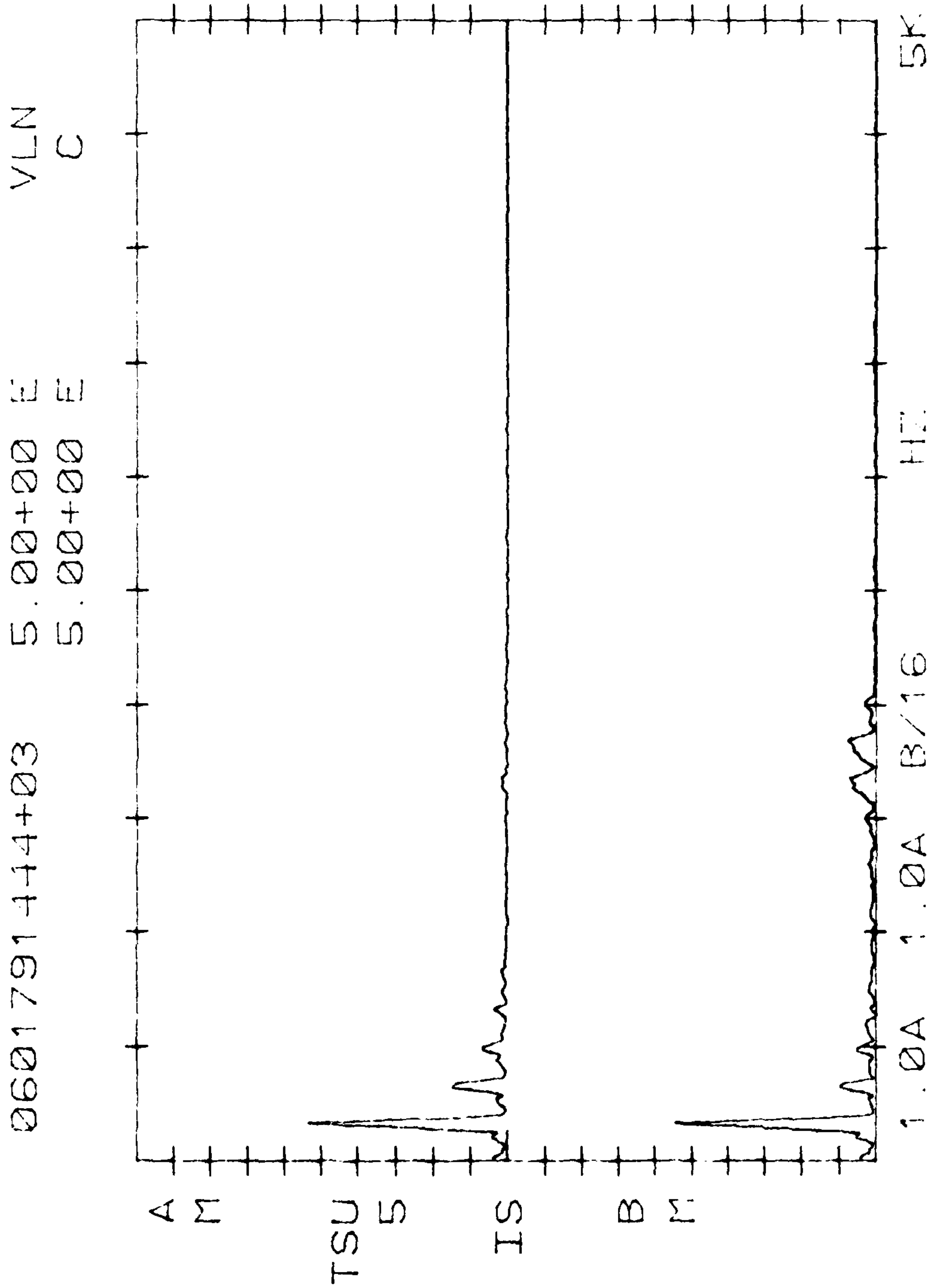
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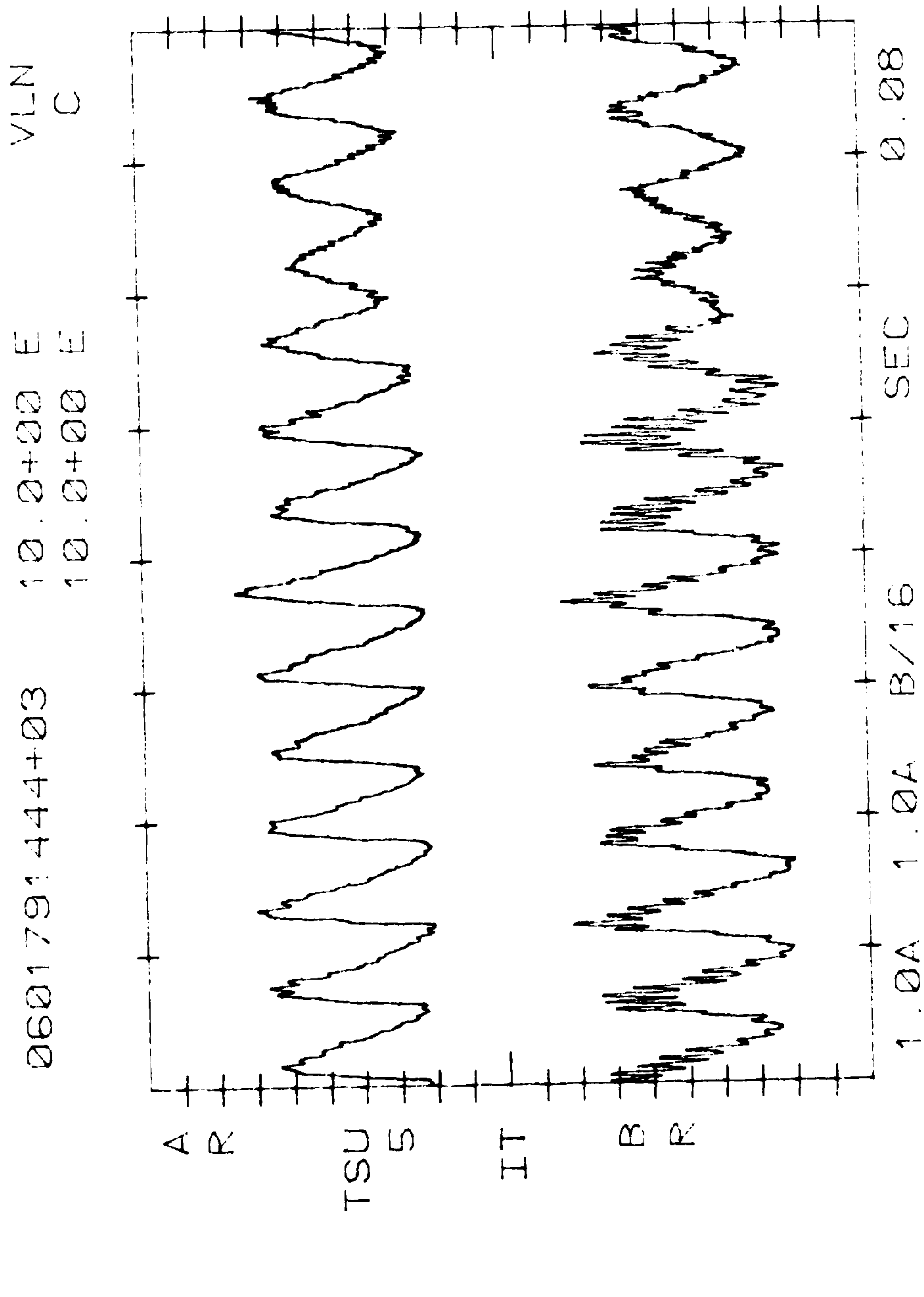
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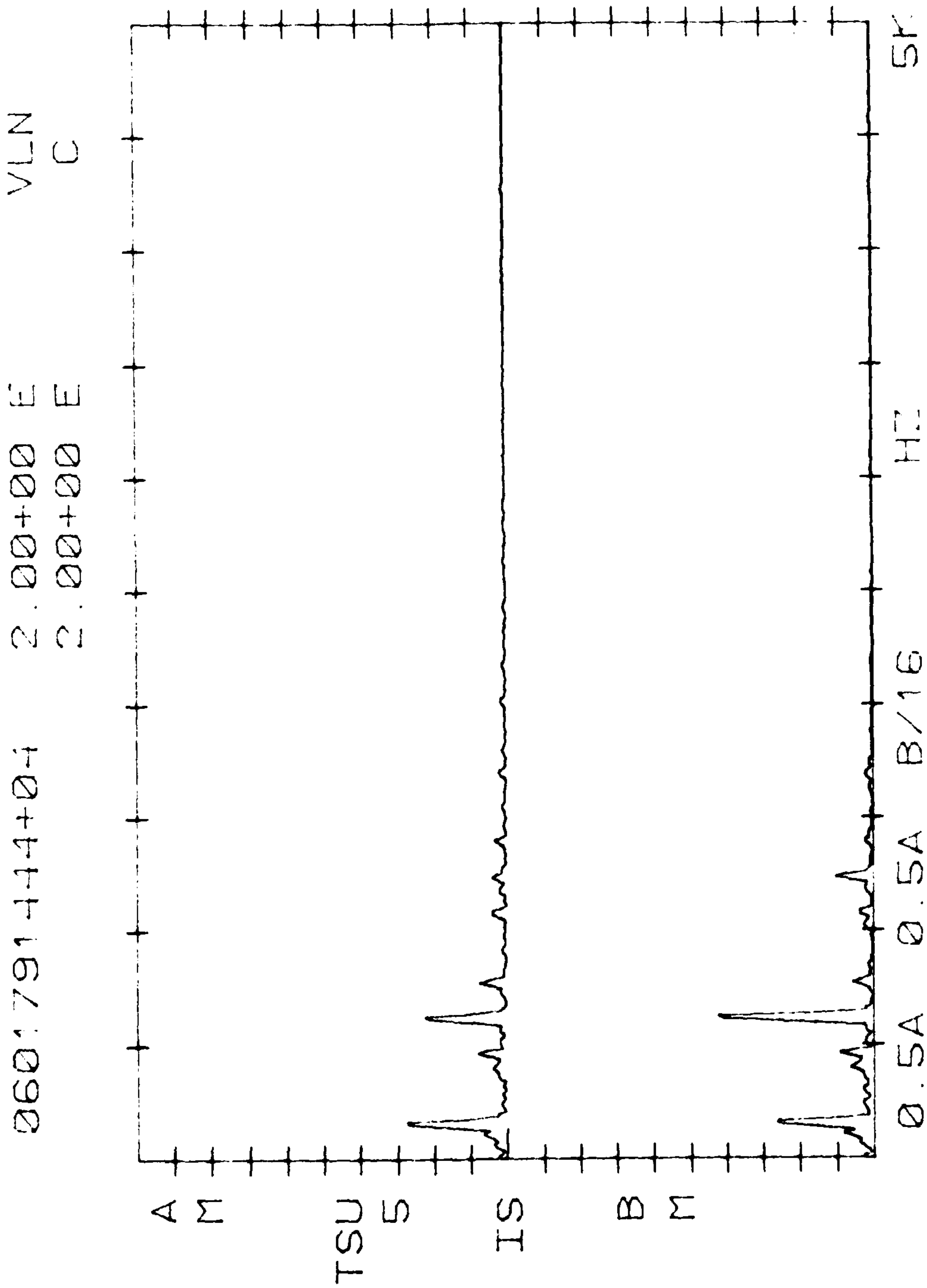
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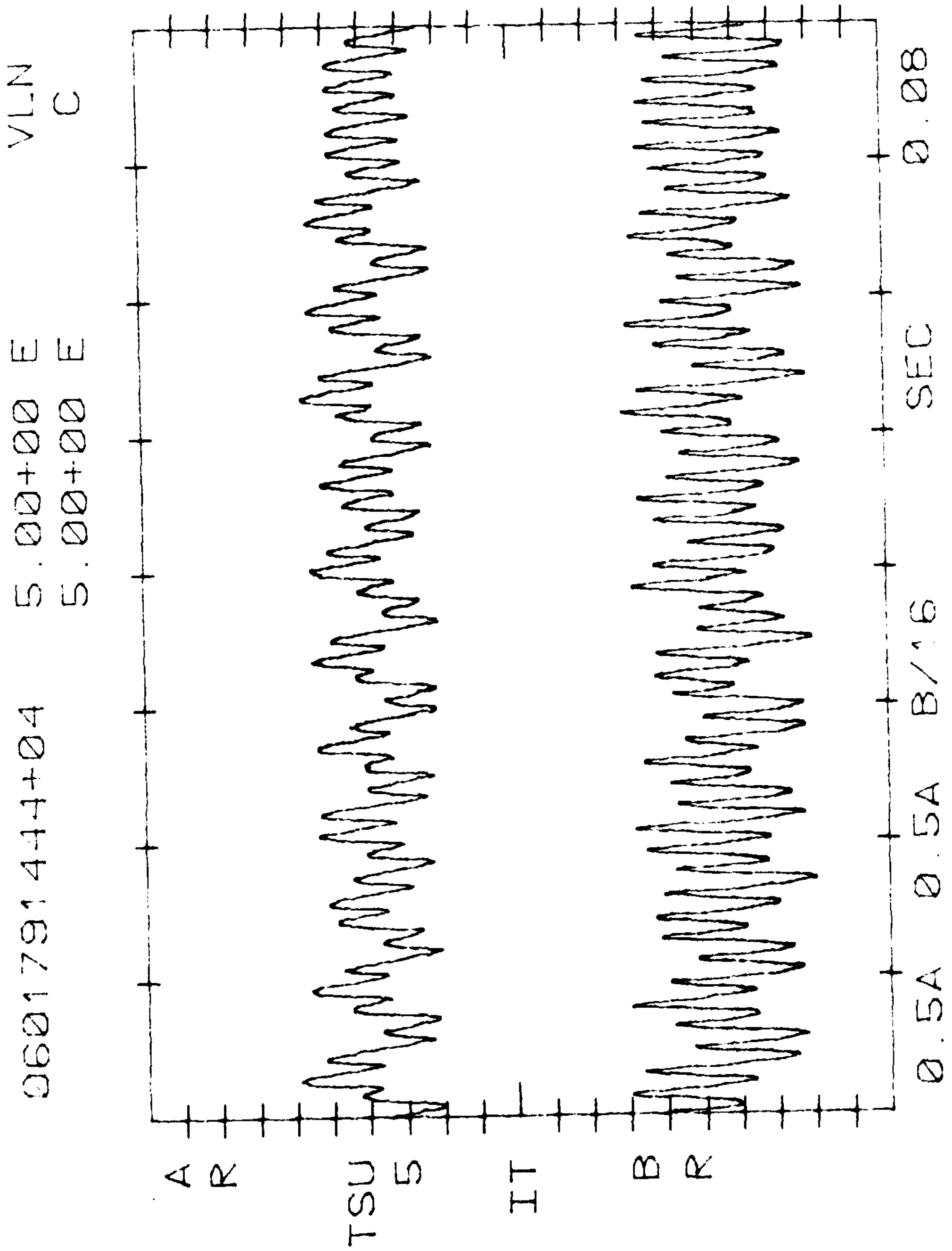
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REDUCED DATA LISTING

** J01 **

FILE- 6 TIME-10:52:26 DATE-06/12/79 PAGE 10

RUN PARAM	FLAMEHOLDER	INJECTORS	D2	D3	D5	LC	LN	CD
	.25VM	UNIFRM	4.7500	8.0000	5.6580	24.0000	4.0000	0.9850

RECORD TIME	WD6 TT5I WD02 WD2	WA3 TT5-F WDFJ85 QDOTT	WF TT5-P5 J85F/A EFFJ85	F/A ETAC-F ETAC-J85 ETACC-J85	TTO-R TMAX ETAC-P5 ETACC-P5	P5 F6 EQIV RATIO MEX	PT2C M2C PEX E26	PT5C PT5/PT2 SAM/T1**.5
1	0.0000	5.4896	0.0011	0.0000	754.9263	11.0633	22.1889	11.5511
30240.74	872.9546	766.0664	773.0518	0.0000	750.7224	35.8986	0.4867	0.5206
	0.0567	0.0116	0.0021	0.0000	0.0000	0.0000	4.9620	2.4050
	0.0000	-0.3236	1.0235	0.0000	0.0000	1.0000	4.7300	
2	0.0000	5.5216	0.3525	0.0631	745.1802	25.8588	31.5374	26.2595
30272.17	4000.1333	3274.2002	3473.7861	0.7583	756.8667	28.8080	0.3161	0.8326
	0.0467	0.0118	0.0021	0.7564	0.8192	0.9329	5.3206	5.4085
	0.0000	4.7237	0.9368	0.7604	0.8203	1.0000	2.2125	
3	[illegible]	5.4007	0.3267	0.0589	754.6399	25.1103	30.7129	25.4772
[illegible]	[illegible]	3162.3447	3362.3076	0.7503	760.2378	29.0264	0.3254	[illegible]
	[illegible]	0.0120	0.0022	0.7493	0.8126	0.8711	5.3913	5.2553
	[illegible]	[illegible]	0.9702	0.7539	0.8162	1.0000	2.3075	
4	[illegible]	5.6502	0.3066	0.0556	756.0566	24.3136	29.9968	24.7095
[illegible]	[illegible]	3026.6232	3209.0781	0.7342	758.7397	29.3460	0.3334	0.8237
	[illegible]	0.0118	0.0021	0.7338	0.7931	0.8200	5.3672	5.1119
	[illegible]	4.6350	0.9899	0.7380	0.7969	1.0000	2.4119	

RAW DATA LISTING

** F00 **

[illegible]	[illegible]	[illegible] P27009	[illegible] P27010	PS1 T1170 P27000 P27011	DPEX P27012	F W02 P27003 P27013	PS1 P27014	[illegible] P27005 P27016	[illegible] <---->
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-127.7705	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.8722	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	375.9742	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.0034	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.4843	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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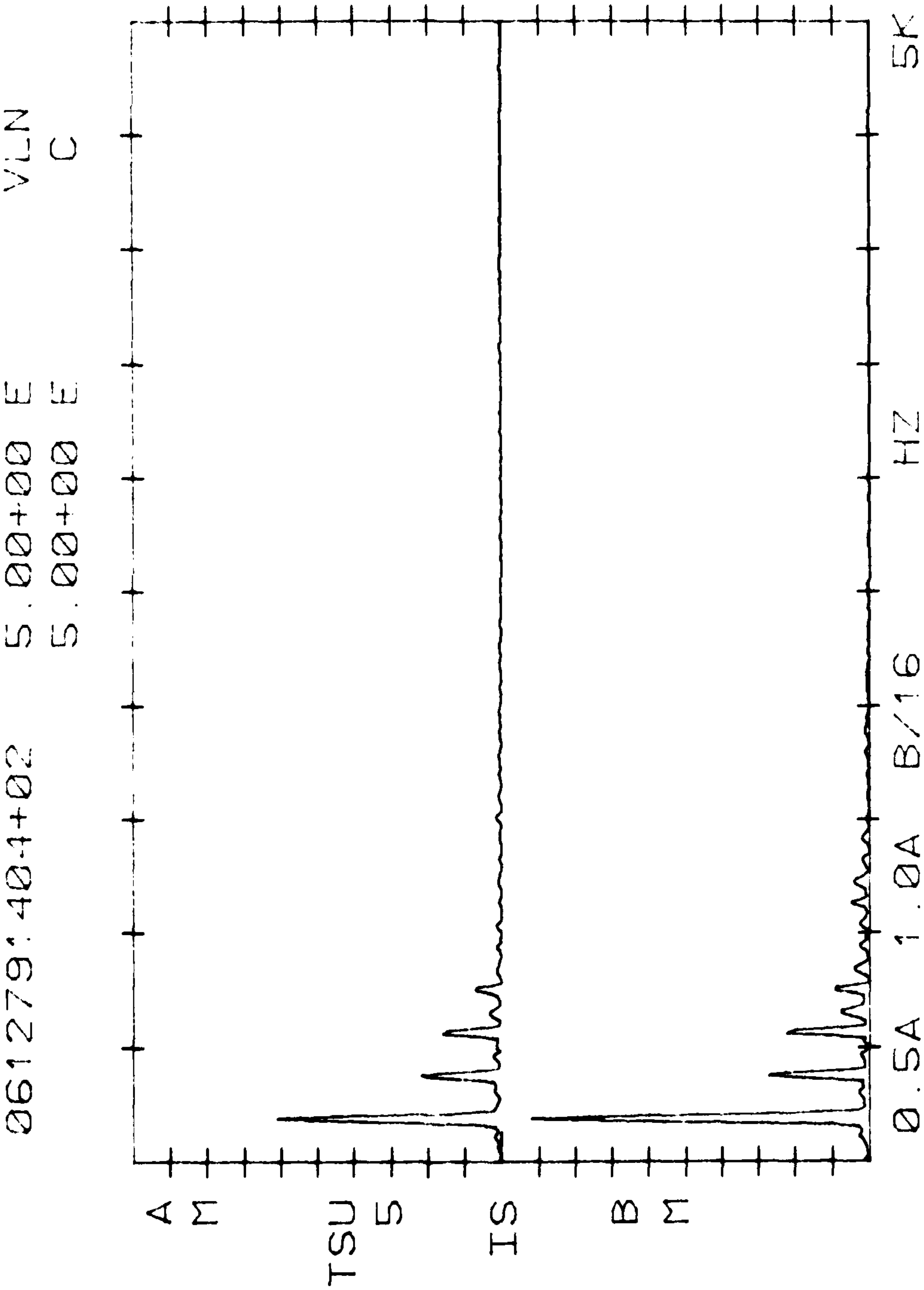
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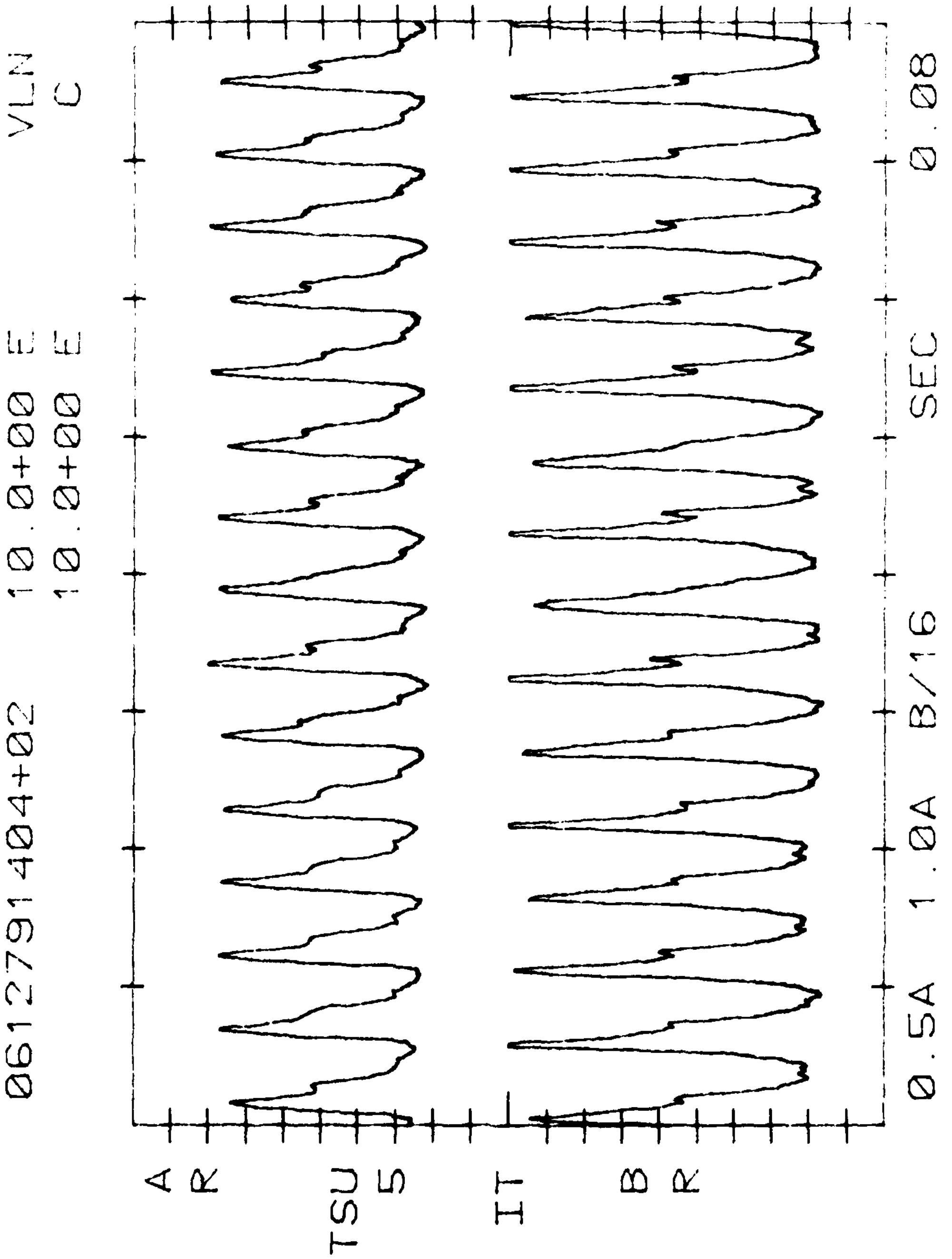
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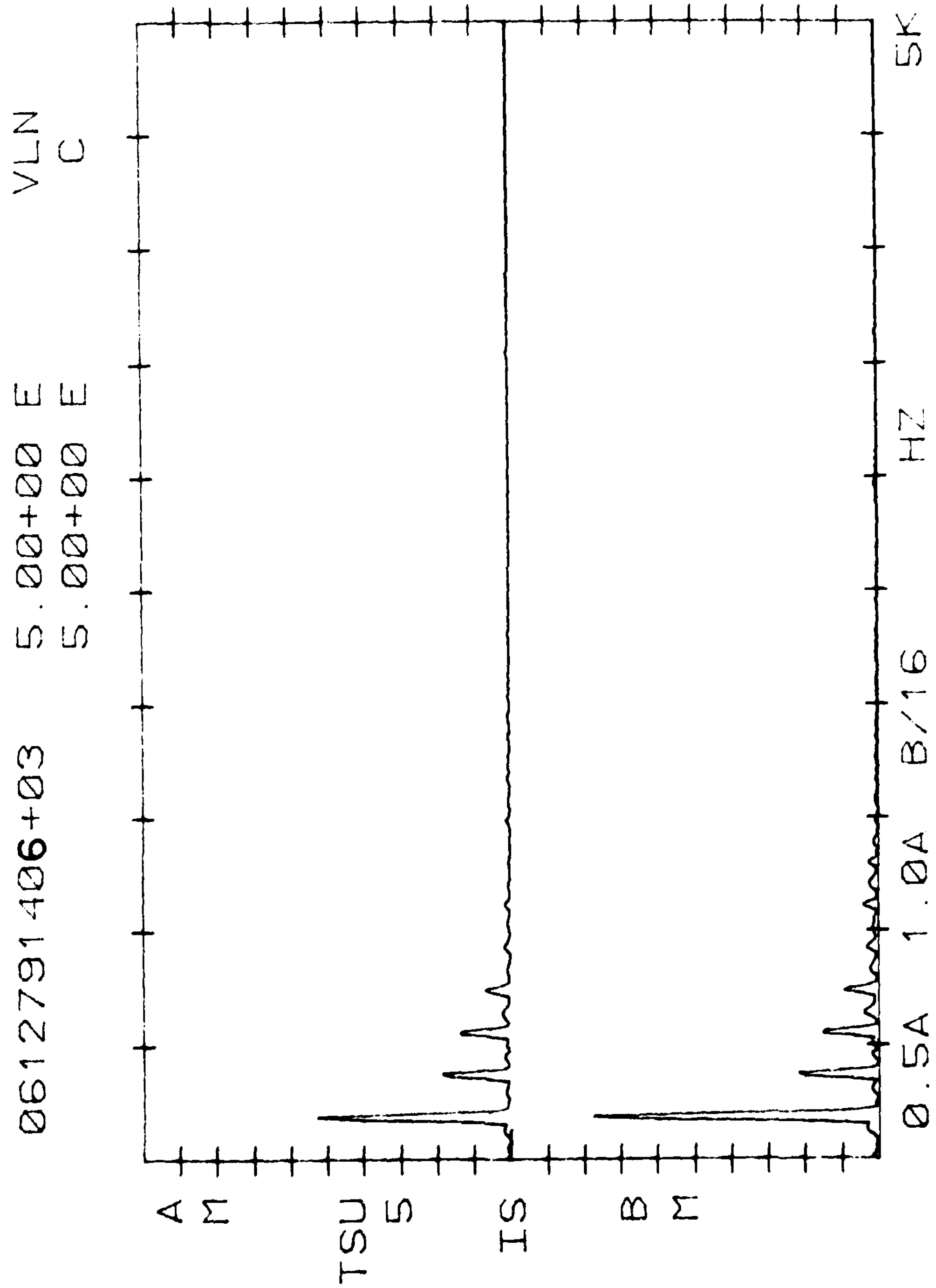
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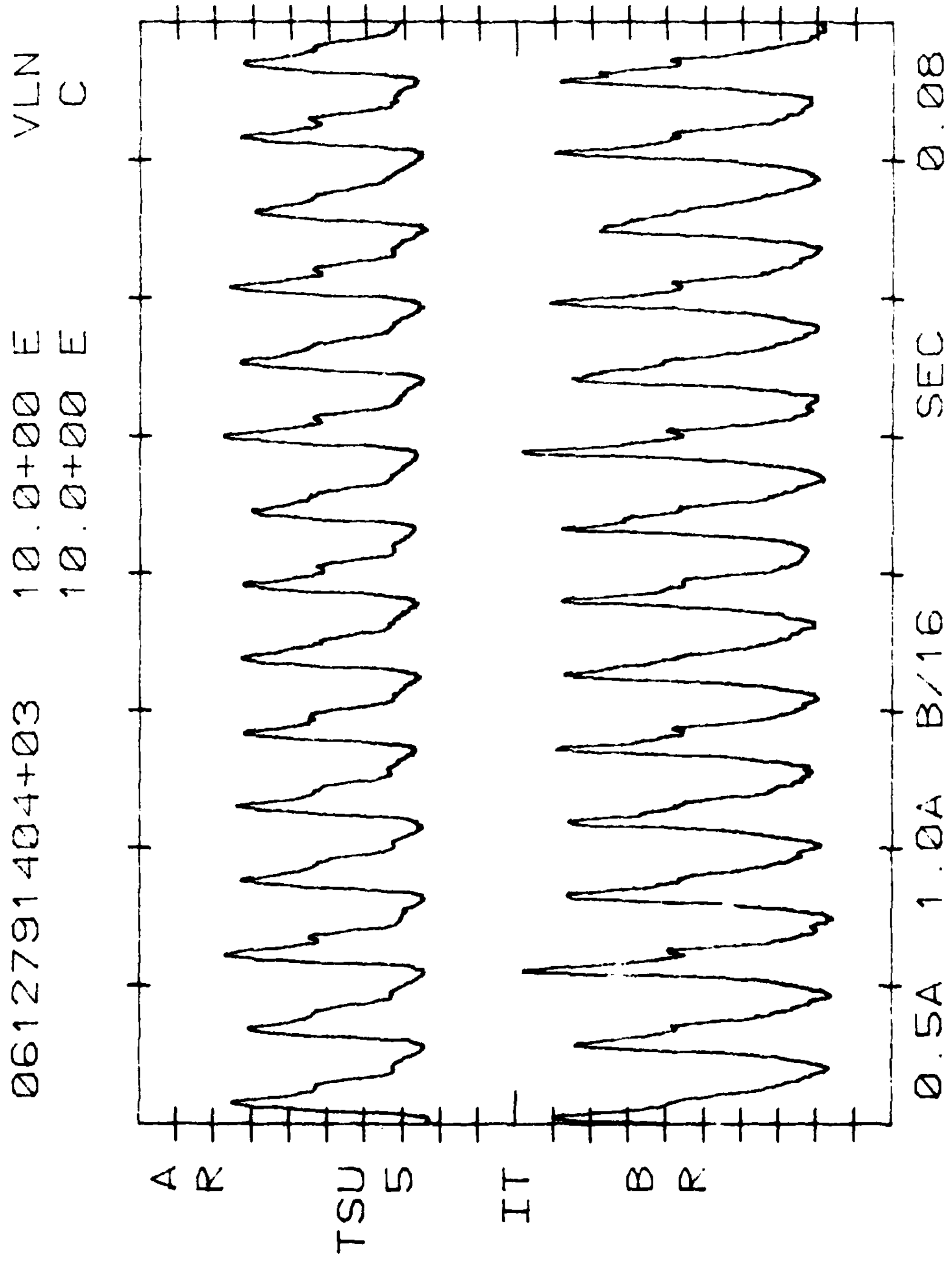
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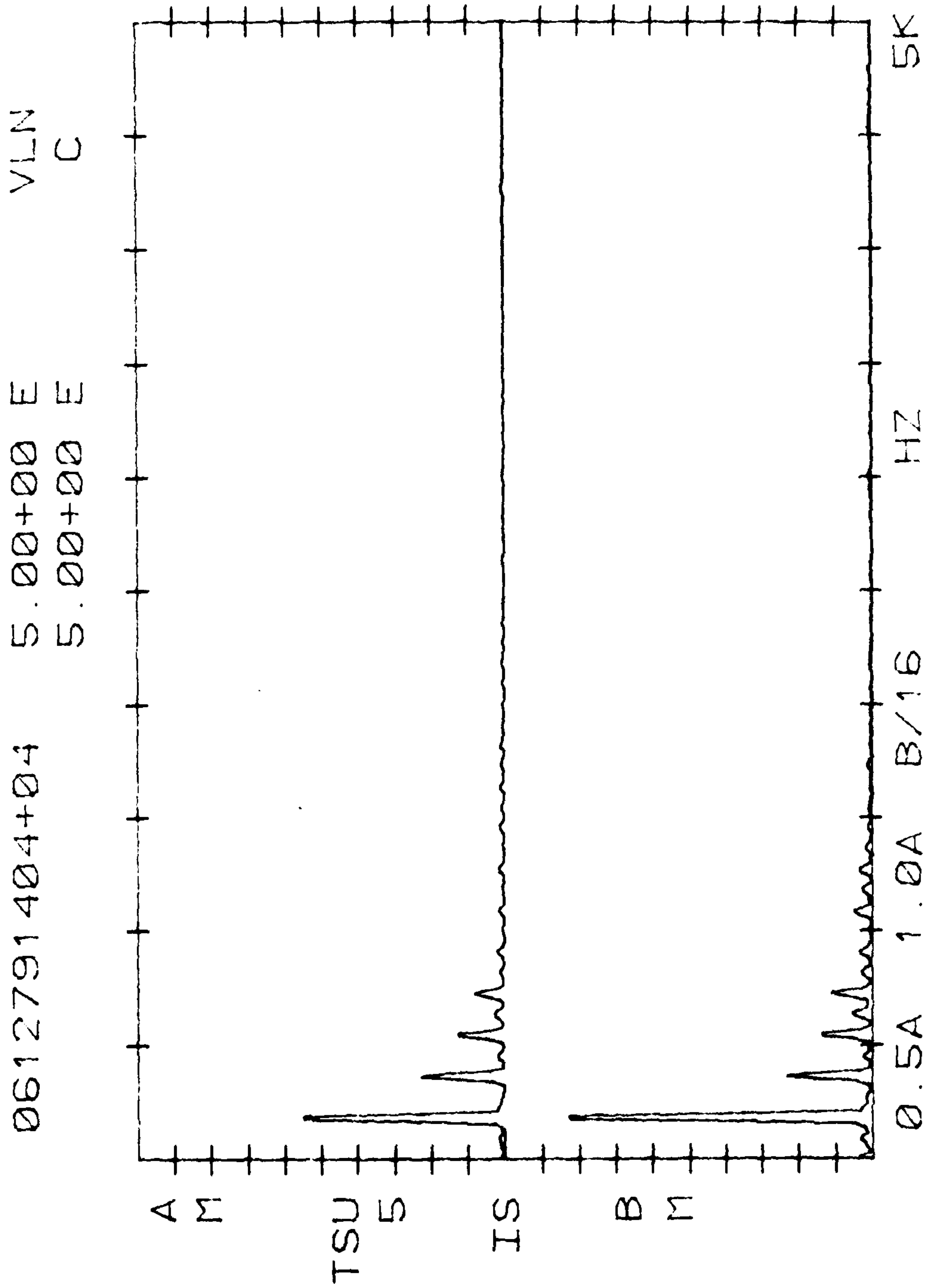
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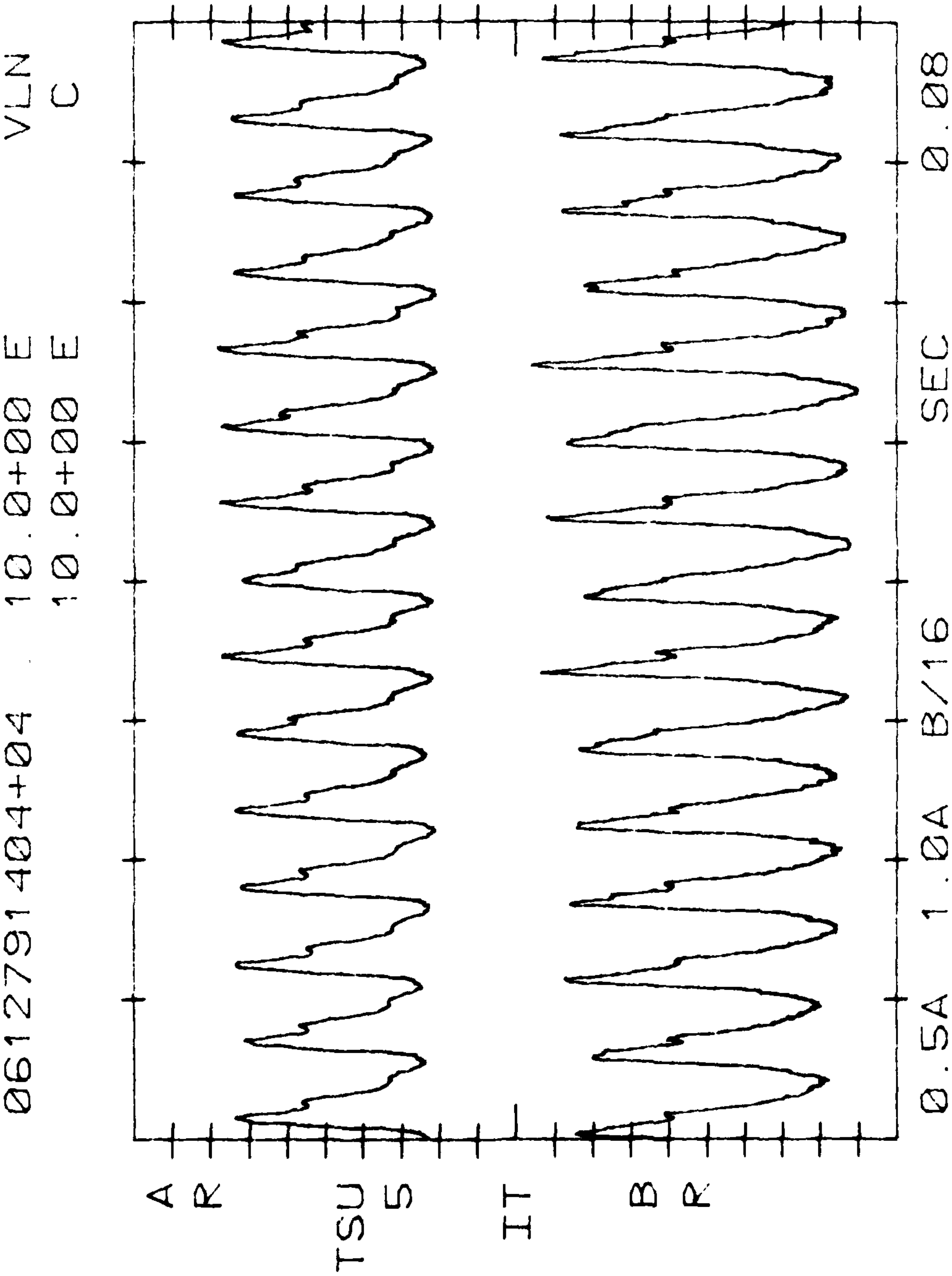
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REDUCED DATA LISTING

N01

[illegible] DATE-08/12/79 PAGE 1[illegible]

[illegible]	PLATEHOLDER	INJECTORS	D2	D3	D5	LC	LN	CD
[illegible]	.25[illegible]	.0591	4.7500	0.0000	5.6580	24.0000	4.0000	0.9850

RECORD / TIME	WDG / TT51 / WDO2 / WO2	WA3 / TTS-F / WDFJ05 / QDOTT	WF / TTS-P5 / J05F/A / EFFJ05	F/A / ETAC-F / ETAC-J05 / ETACC-J05	TTO-R / TMAX / ETAC-P5 / ETACC-P5	PS / F6 / EQIV RATIO / MEX	PT2C / M2C / PL / E24	PT[illegible] / PT5/PT2 / SAM/TIME[illegible]
[illegible]	[illegible]	5.4424	0.0011	0.0000	761.0113	11.1560	21.0031	11.5[illegible]
[illegible]	[illegible]	777.0804	802.1116	0.0000	759.0011	35.5791	0.4902	[illegible]
	[illegible]	0.0116	0.0021	0.0000	0.0000	0.0000	5.0139	2.6112
	[illegible]	-0.3122	1.0321	0.0000	0.0000	1.0000	4.7651	
[illegible]	[illegible]	5.4946	0.3434	0.0658	757.0345	23.2002	29.2946	24.[illegible]
[illegible]	[illegible]	279[illegible].4720	2874.[illegible]	0.6015	754.[illegible]	30.2[illegible]	0.3444	[illegible]
	[illegible]	0.0116	0.0021	0.6020	0.6250	0.9735	5.3079	4.[illegible]
	[illegible]	2.4297	1.0163	0.6042	0.6277	1.0000	2.5473	
[illegible]	[illegible]	5.4900	0.3[illegible]	0.0504	[illegible]	22.9482	29.0311	23.[illegible]
[illegible]	[illegible]	275[illegible].1075	2820.[illegible]	0.6201	75[illegible]	30.[illegible]	0.[illegible]	[illegible]
	[illegible]	0.0116	0.0021	0.6[illegible]	0.[illegible]	0.8792	5.3798	[illegible]
	[illegible]	3.1934	1.0050	0.6232	0.6462	1.0000	2.6023	
[illegible]	0.0[illegible]	5.4957	0.3061	0.0550	75[illegible]	22.9118	28.9725	23.[illegible]
[illegible]	[illegible].1[illegible]	276[illegible].2725	2831.7910	0.6518	754.7117	30.[illegible]	0.3[illegible]	[illegible]
	[illegible]	0.0116	0.0021	0.65[illegible]	0.[illegible]	0.[illegible]	5.4535	[illegible]
	[illegible]	3.4929	1.0161	0.6556	0.6704	1.0000	2.6140	
5	[illegible]	5.4962	0.2809	0.0505	750.0001	22.8945	28.9480	23.[illegible]
304[illegible].78	3[illegible]	2707.8545	284[illegible].6748	0.[illegible]	753.[illegible]	30.6574	0.3502	0.[illegible]
	[illegible]	0.0116	0.0021	0.7005	0.7205	0.7467	5.4337	4.[illegible]
	[illegible]	3.9053	1.0256	0.7045	0.7255	1.0000	2.6152	
6	0.0[illegible]	5.4970	0.2467	0.0440	755.3400	22.4046	28.5974	23.2033
[illegible]	33[illegible]	2704.3477	2705.7725	0.7454	754.7876	30.9672	0.3548	0.[illegible]
	[illegible]	0.0116	0.0021	0.7456	0.7[illegible]	0.6503	5.3707	4.[illegible]
	[illegible]	3.5480	1.0051	0.7494	0.7721	1.0000	2.6924	
7	0.0[illegible]	5.4380	0.2206	0.0415	759.8403	22.0547	28.1562	22.9167
[illegible]501.26	32[illegible]	260[illegible].9248	2751.[illegible]	0.7712	754.3711	30.7374	0.3579	0.8104
	[illegible]	0.0116	0.0021	0.7721	0.7972	0.6162	5.3969	4.7371
	[illegible]	3.7515	1.0172	0.7764	0.8026	1.0000	2.7632	
8	0.0000	5.4476	0.1939	0.0351	758.9479	21.0508	27.2966	21.7[illegible]
[illegible]	293[illegible]	247[illegible].3535	2536.1164	0.7[illegible]	754.4402	31.3039	0.3720	0.7[illegible]
	0.0[illegible]	0.0116	0.0021	0.7009	0.8175	0.5199	5.2718	4.5166
	0.0000	3.2342	1.0114	0.7955	0.8228	1.0000	2.9409	
[illegible]	[illegible]	5.4643	0.1607	0.0305	75[illegible]	20.2549	26.5003	20.[illegible]
[illegible]	[illegible]	[illegible].7246	236[illegible]	0.8079	755.0150	32.1140	0.3851	[illegible]
	[illegible]	0.0116	0.0021	0.8091	0.8369	0.4511	5.2[illegible]	[illegible]
	[illegible]	2.9531	1.0166	0.8139	0.8409	1.0000	3.1164	
[illegible]	[illegible]	5.4790	0.1341	0.0262	760.5166	15.3330	22.9947	15.[illegible]
[illegible]	[illegible]	150[illegible].3059	142[illegible].0933	0.3890	755.1646	35.1344	0.4649	[illegible]
	[illegible]	0.0116	0.0021	0.3921	0.4251	0.3576	5.2179	[illegible]
	[illegible]	[illegible]	1.0[illegible]	0.3948	0.4309	1.0000	4.3301	

RAW DATA LISTING

** JOB **

P3 T02 <....> P27007	DP3 P02 THRUT P27008	T3 T1000 WH20 P27009	T4 T1090 TMIN P27010	PS1 T1270 P27000 P27011	DPEX WFN P27002 P27012	F W02 P27003 P27013	PC1 TC2H6 P27004 P27014	PAMB PC2H6 P27005 P27015	PS6 WJ85 P27006 <....>
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501.8420	196.7076	761.8118	2488.9385	757.1658	0.0011	12.0943	526.8376	143.0577	0.9822
-567.2590	516.4143	2.9064	517.0061	7.3623	7.3255	7.8765	8.4521	9.0044	9.1829
9.7007	9.9076	10.3449	10.4961	10.6372	10.7798	10.8272	11.0085	11.1782	14.5993
RECORD: 2	TIME:39395.21 SEC		ID:1	NUM:0					
248.2932	7.3482	579.6738	572.3660	26.9951	9.0319	269.1295	23.2893	14.3858	34.6275
502.1858	196.7969	757.8350	2486.0684	753.8933	0.3656	12.1381	527.0765	141.4615	0.9911
-566.2329	522.5800	2.8951	517.9302	22.8644	23.1615	23.2518	23.3051	23.4901	23.6023
23.4803	23.3977	23.3593	23.2660	23.2420	23.2203	23.1493	23.1966	23.5010	14.7901
RECORD: 3	TIME:39405.56 SEC		ID:1	NUM:0					
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[illegible]	196.7483	755.9580	2484.3049	753.5854	0.3303	12.1556	526.9202	141.6213	0.9930
[illegible]	523.1[illegible]	2.8373	516.9297	22.6048	23.0527	23.1798	23.2122	23.3704	23.2261
23.3073	23.1[illegible]	23.2470	23.0901	23.0602	23.0306	22.9212	22.9376	23.1701	14.8791
RECORD: 4	TIME:39416.07 SEC		ID:1	NUM:0					
247.1160	7.3728	579.6382	572.1907	26.6326	8.9700	259.2618	22.9118	14.3906	34.1509
502.4578	196.7076	757.6306	2483.5273	754.3208	0.3061	12.1011	527.1726	141.3727	0.9960
-567.2402	523.8090	2.9272	517.1026	22.5254	23.0793	23.1472	23.1648	23.3292	23.1569
23.2706	23.1343	23.1967	23.0471	23.0396	22.9668	22.8521	22.9048	23.0871	14.9904
RECORD: 5	TIME:39426.78 SEC		ID:1	NUM:0					
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502.1790	196.7006	758.0006	2481.1162	756.8784	0.2809	12.4016	527.4055	141.3566	[illegible]
-567.1270	524.3018	2.8903	517.0886	22.4865	23.0005	23.0925	23.1145	23.2704	[illegible]
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[illegible]	196.9769	755.3613	2673.7500	752.0681	0.2447	12.2009	527.6389	141.4001	[illegible]
-567.0859	523.9156	2.8779	517.0413	21.8618	22.3836	22.4696	22.[illegible]	22.[illegible]	22.[illegible]
22.6229	22.5410	22.5274	22.4063	22.4076	22.3472	22.2870	22.3540	22.5677	14.7901
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[illegible]	196.1367	759.5408	2472.1875	754.6177	0.2206	12.1235	527.4622	141.[illegible]	[illegible]
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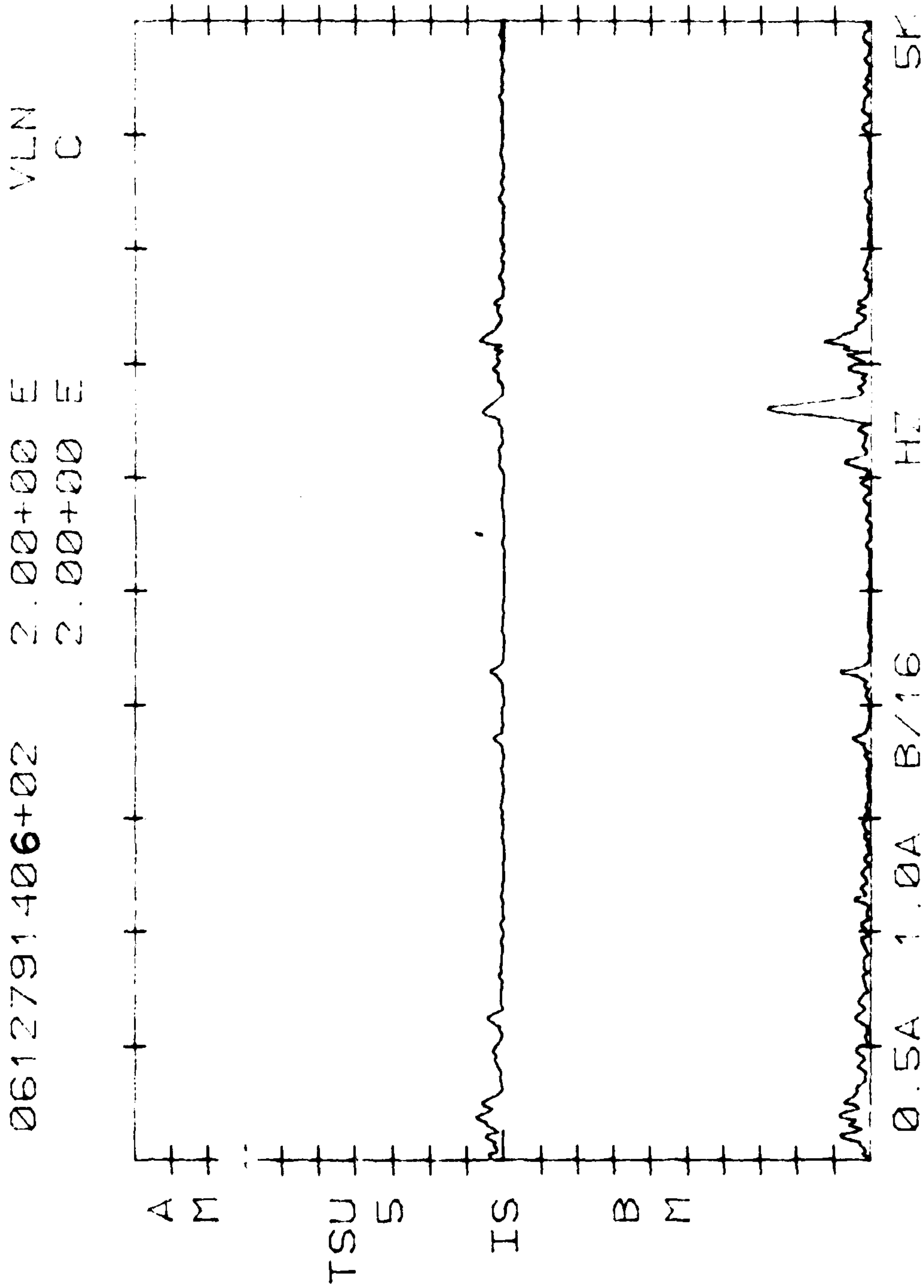
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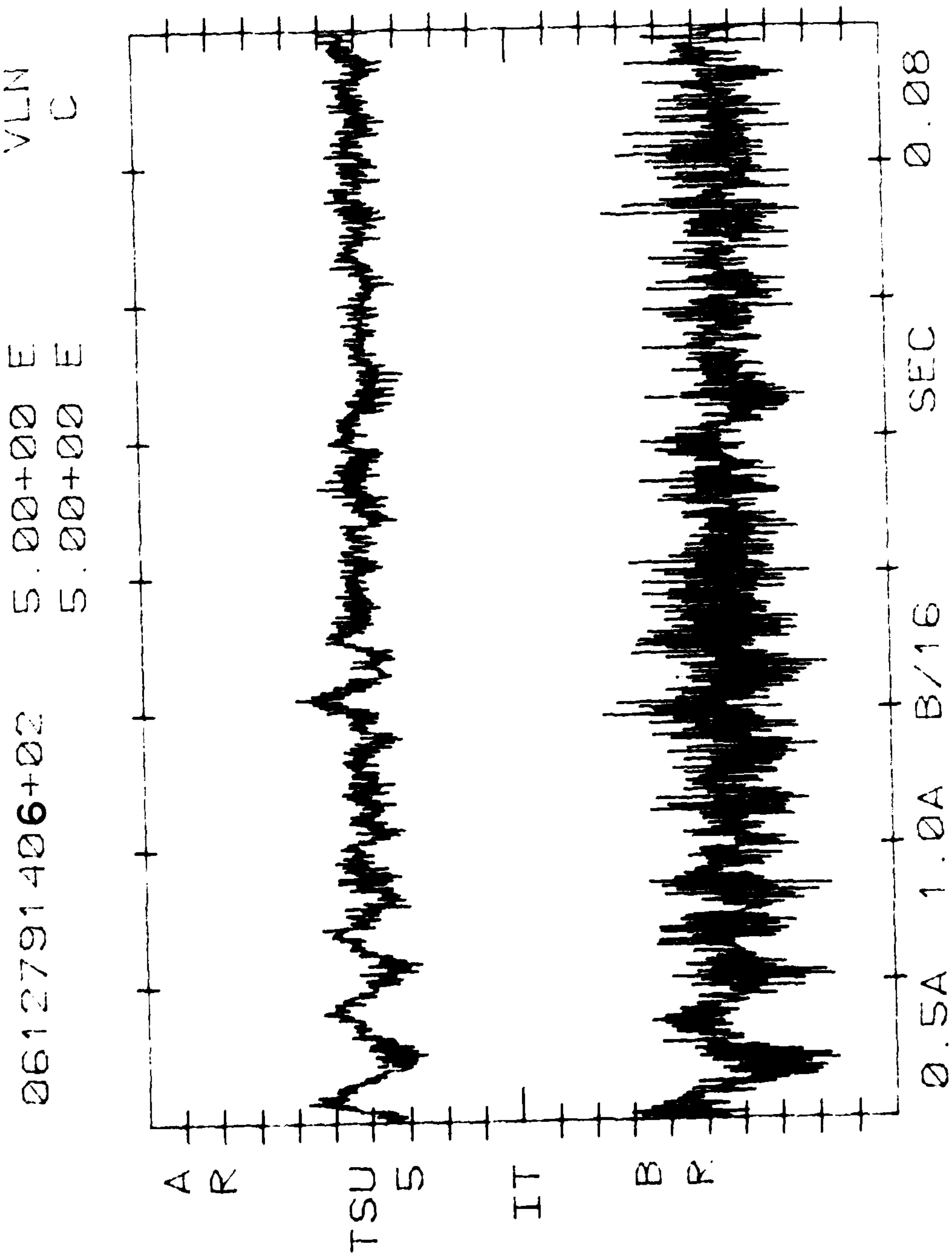
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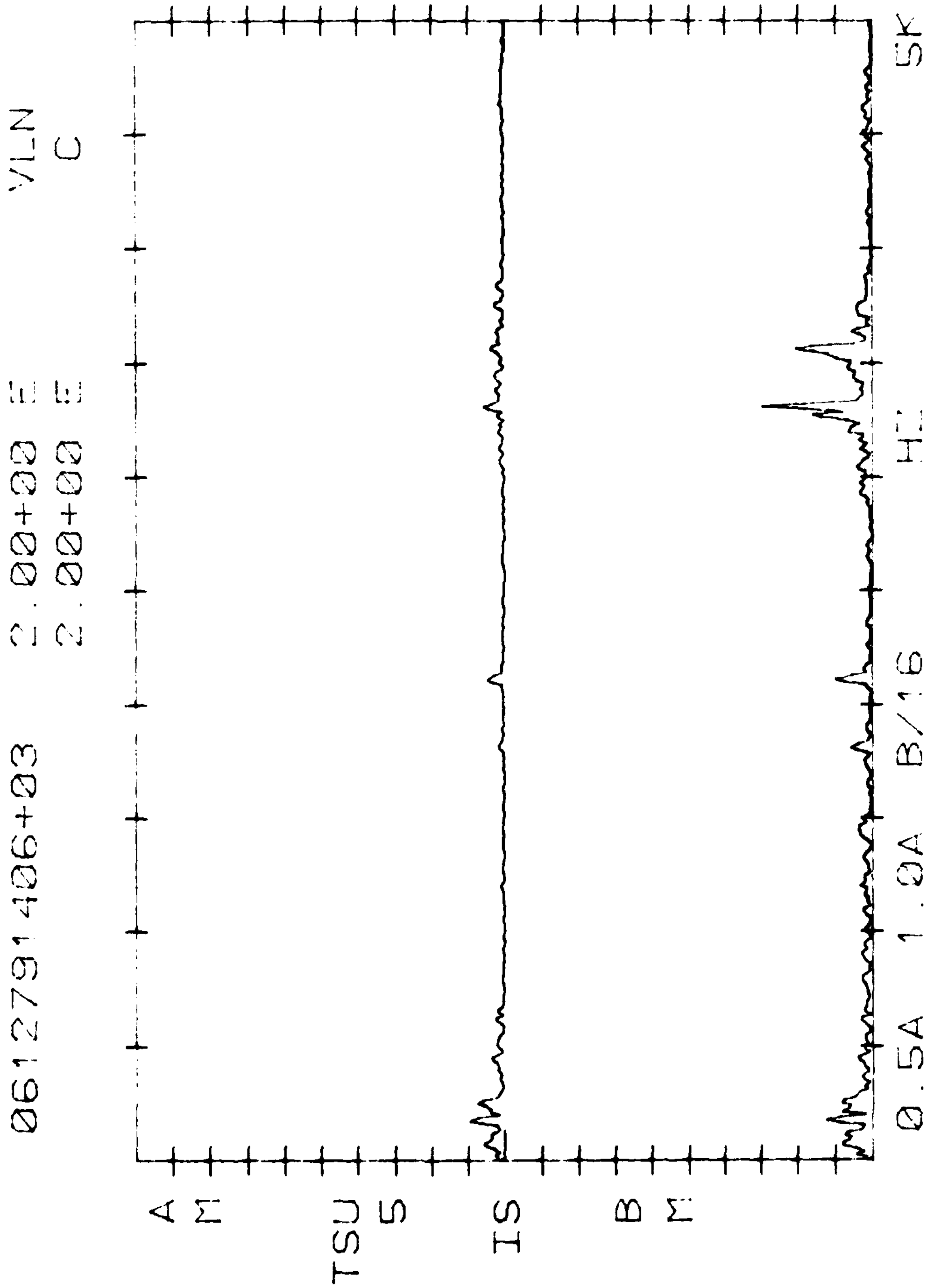
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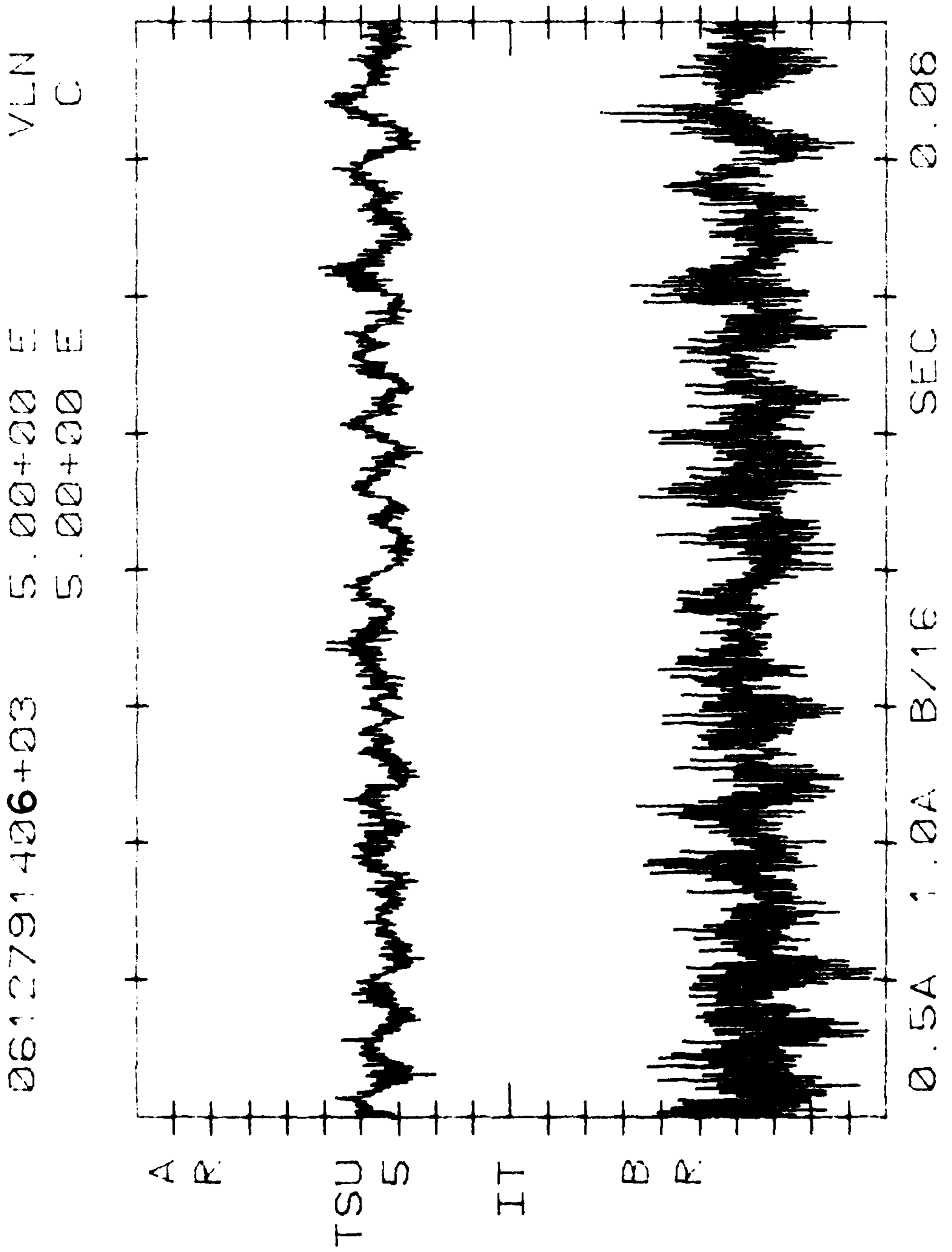
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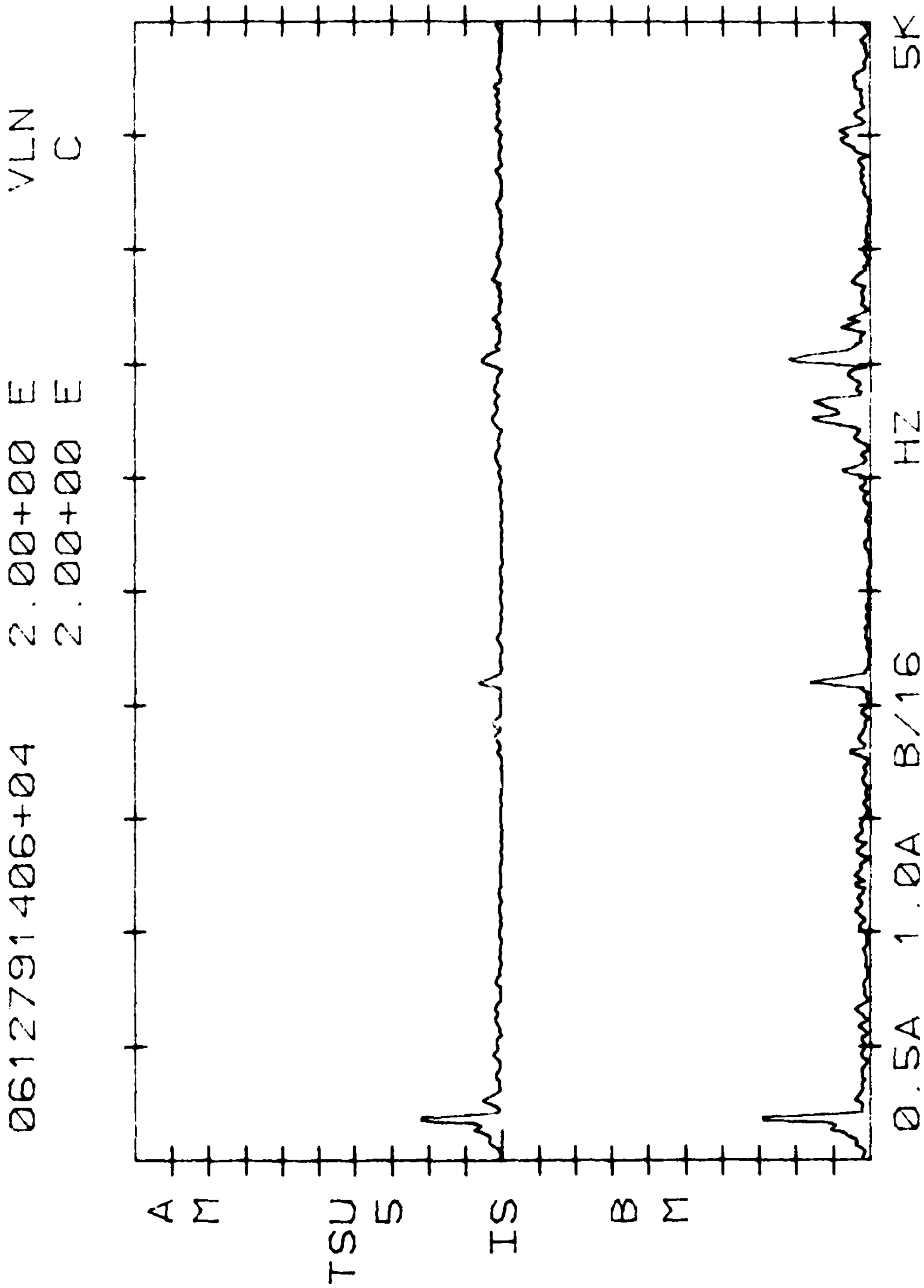
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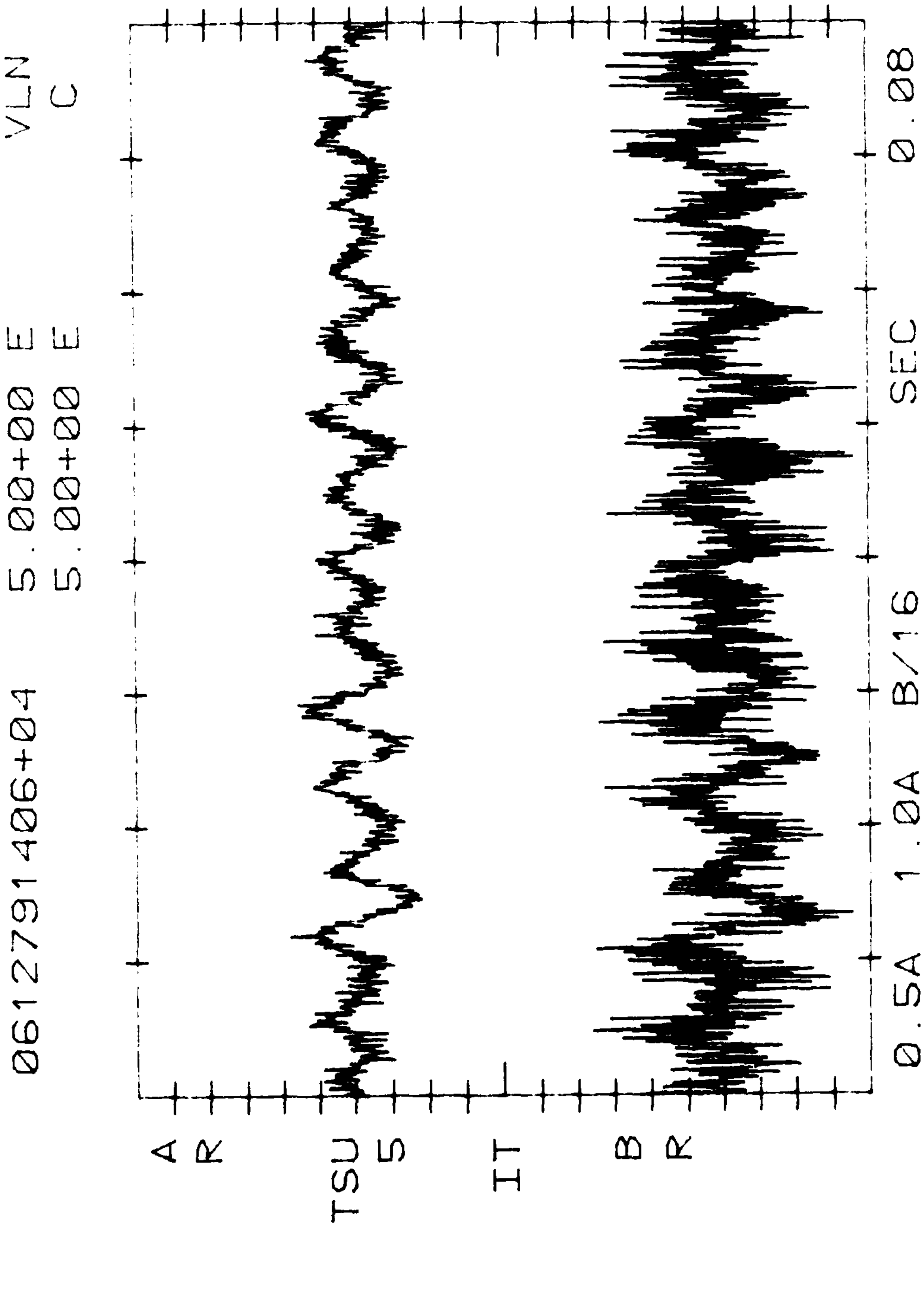
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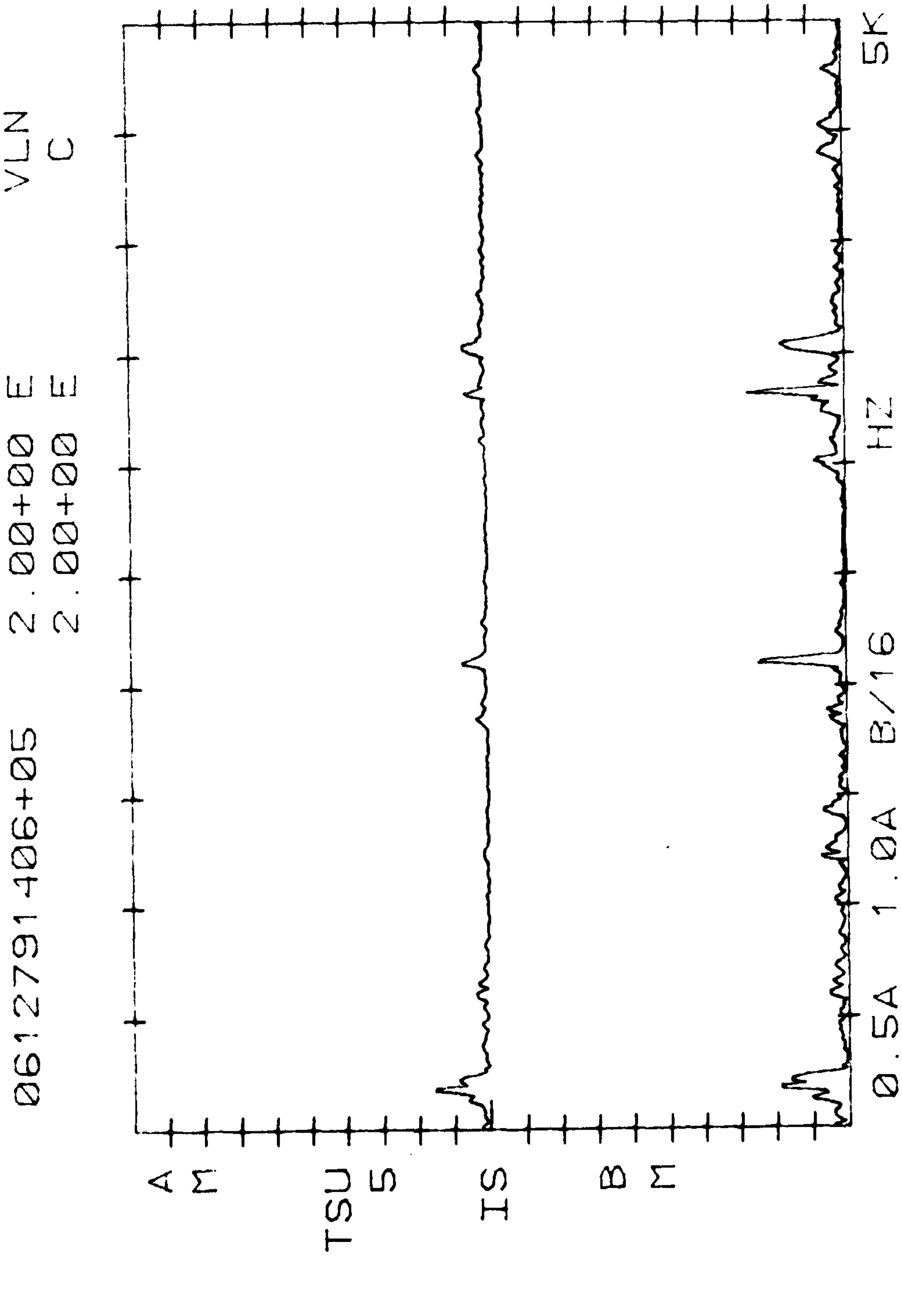
B R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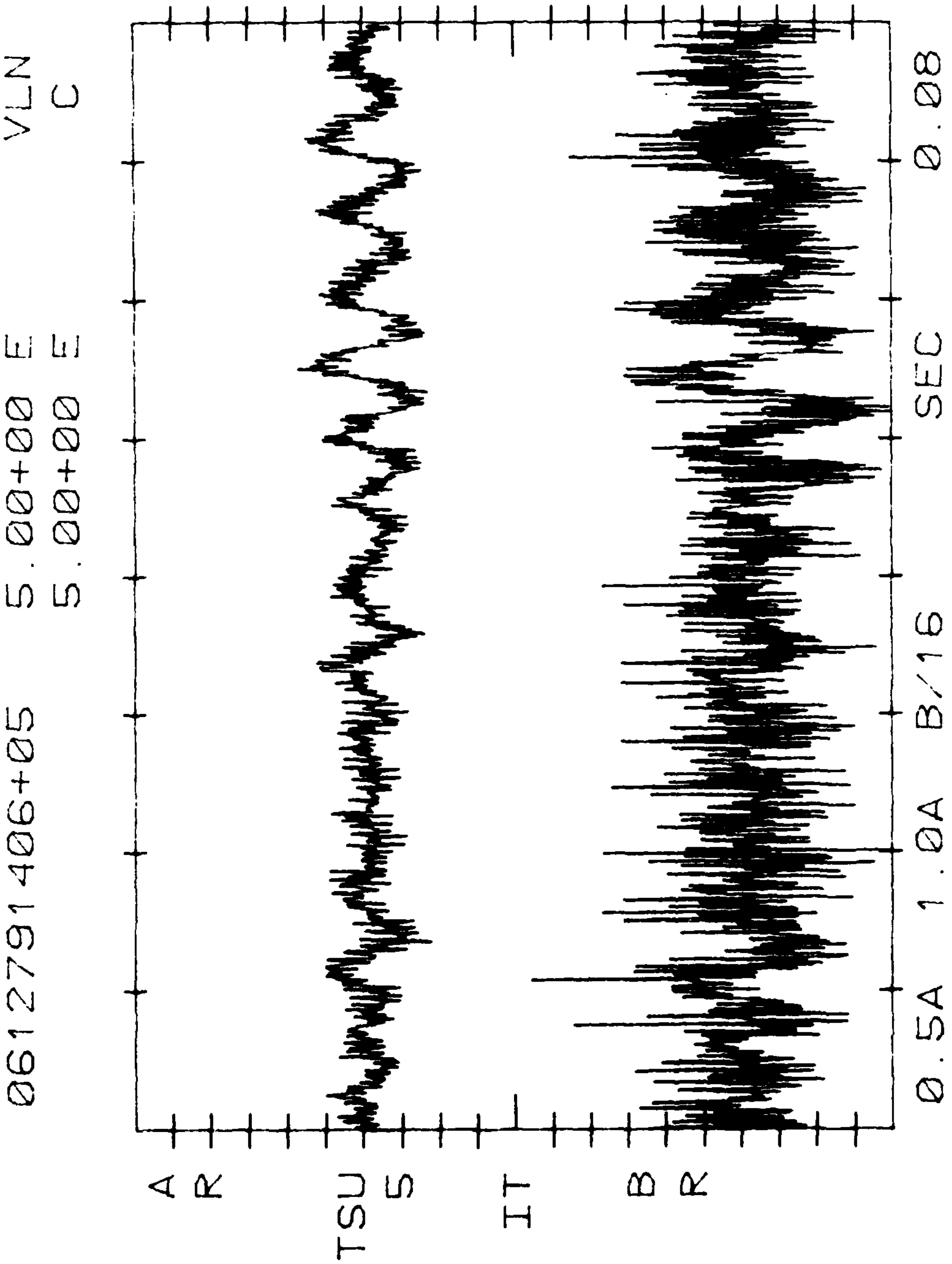
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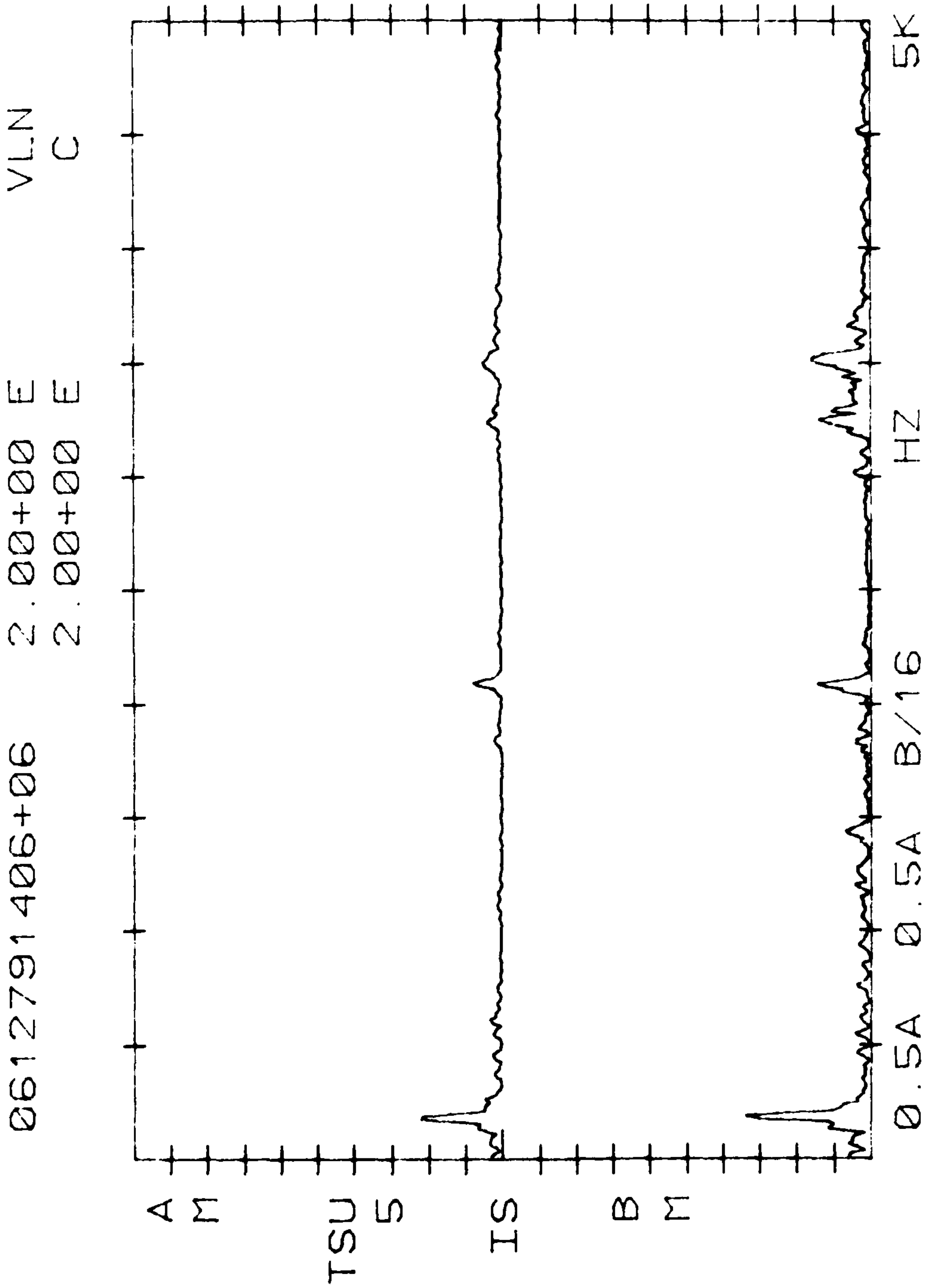
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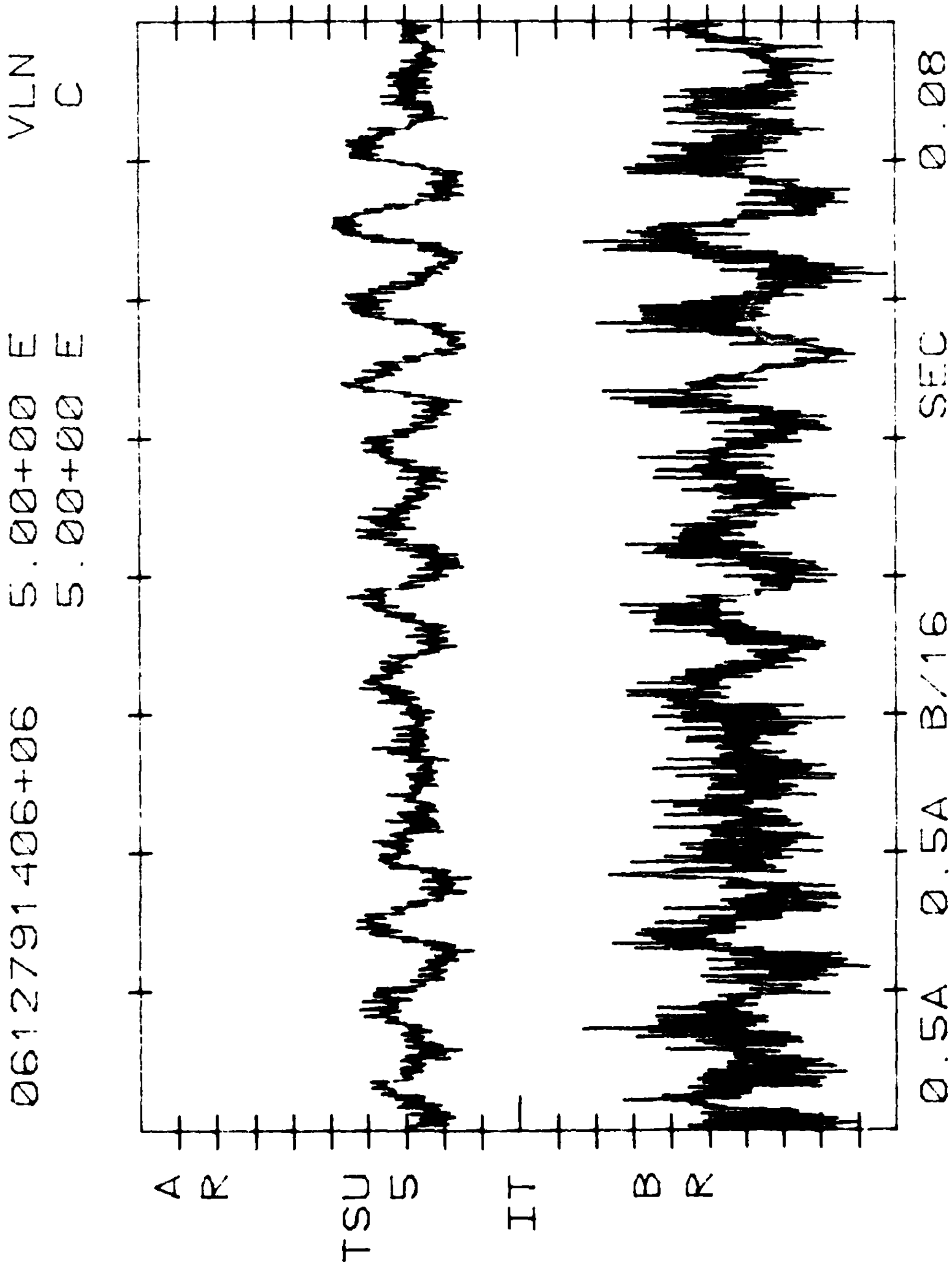
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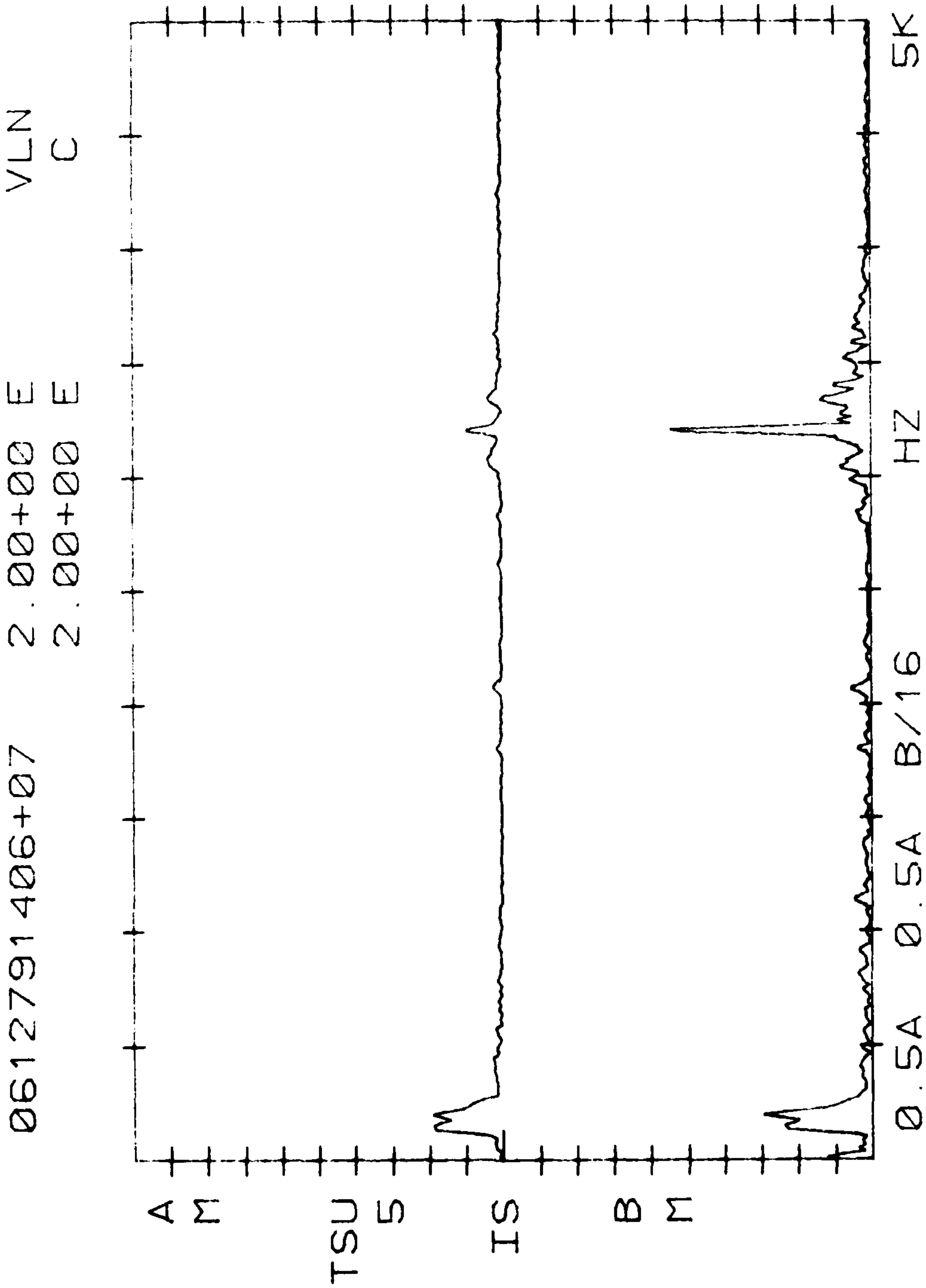
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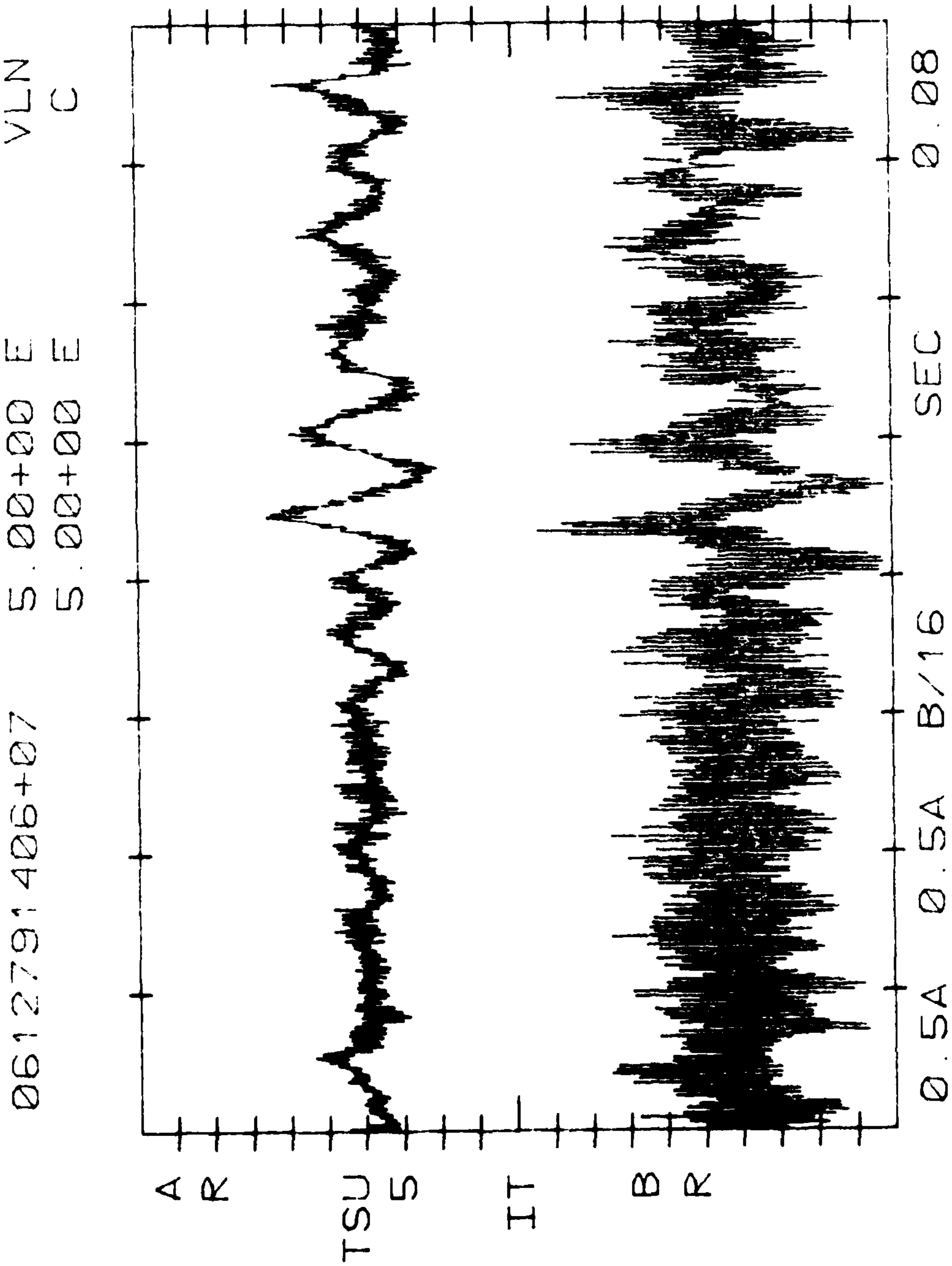
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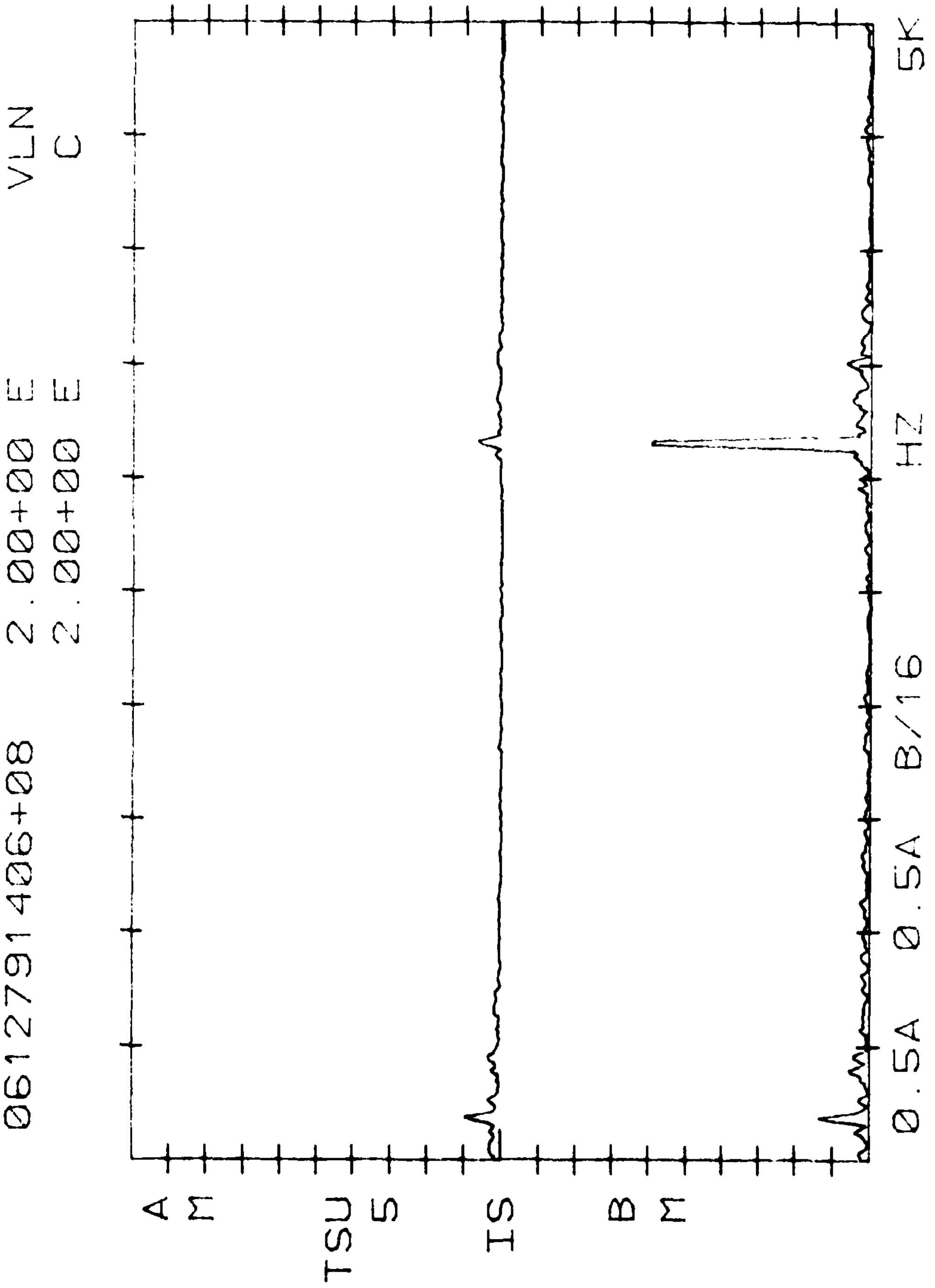
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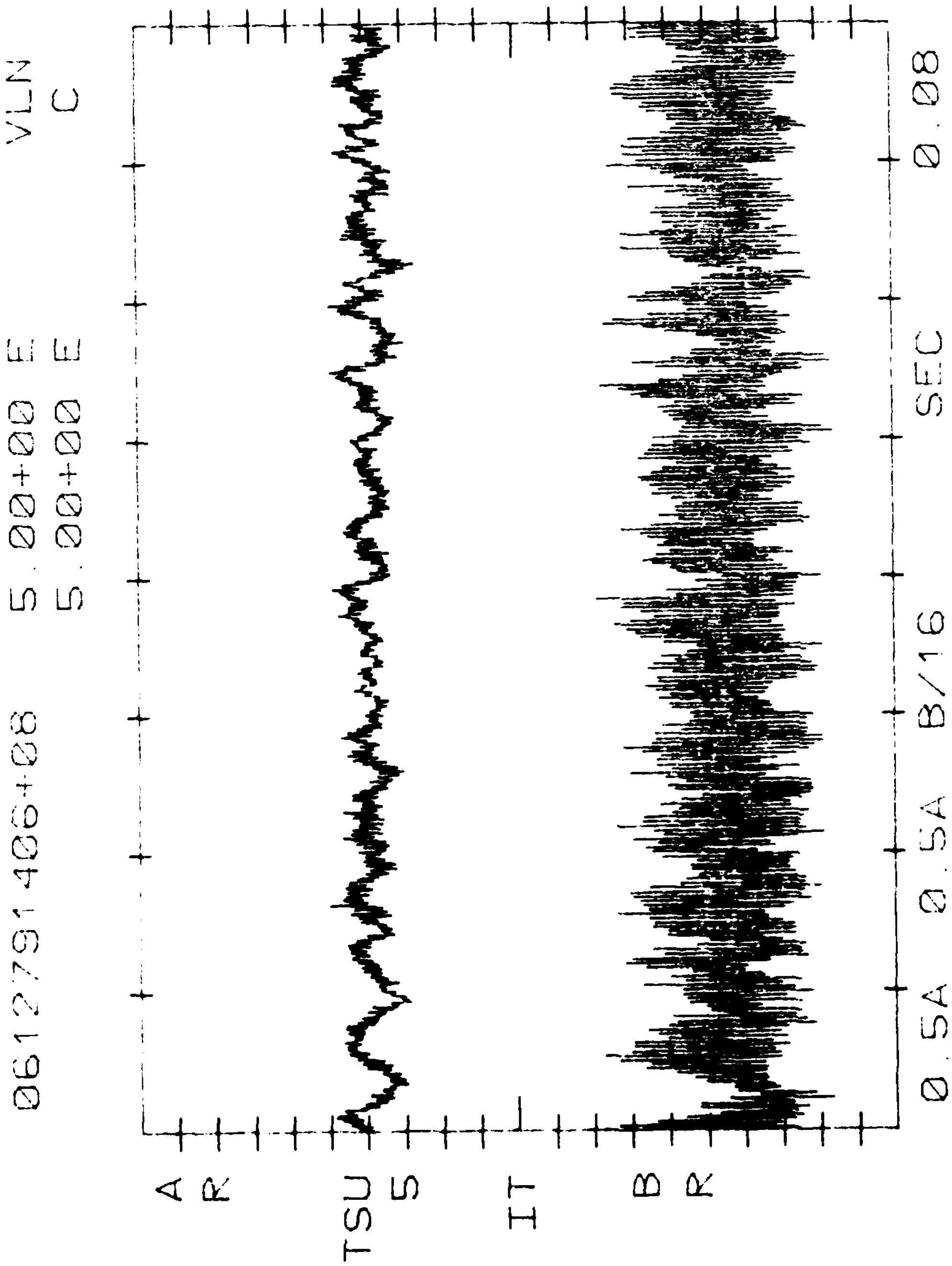
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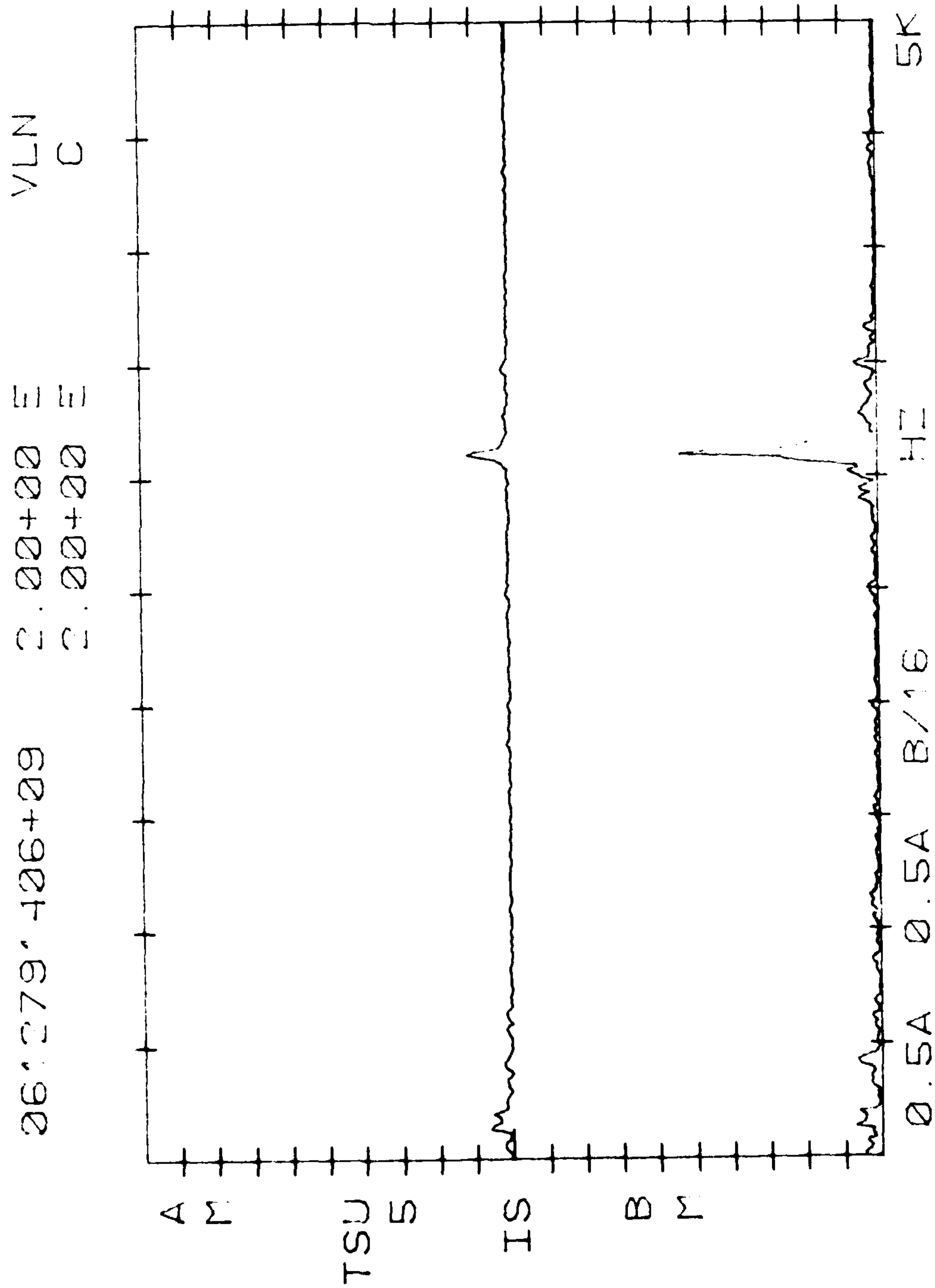
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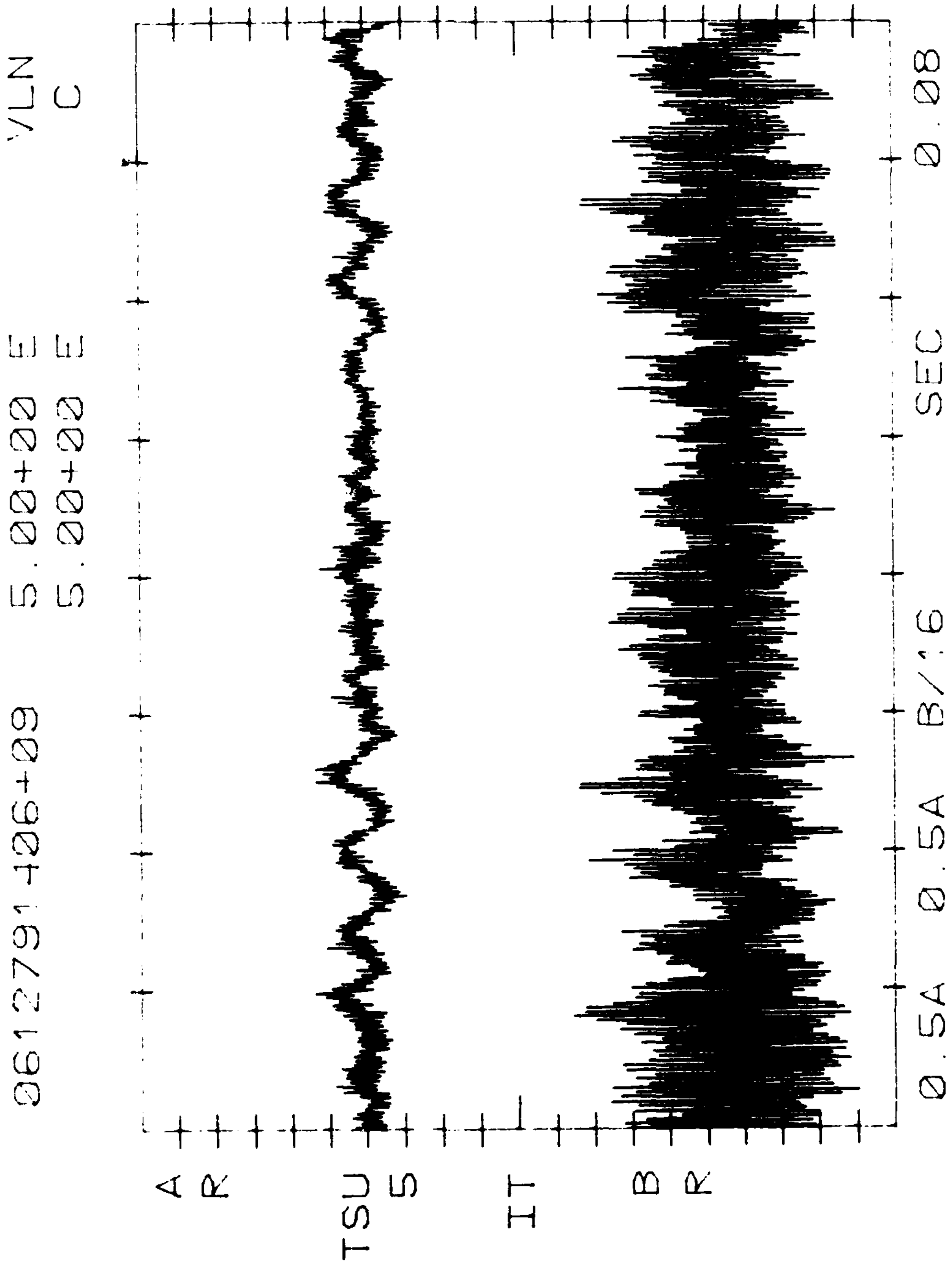

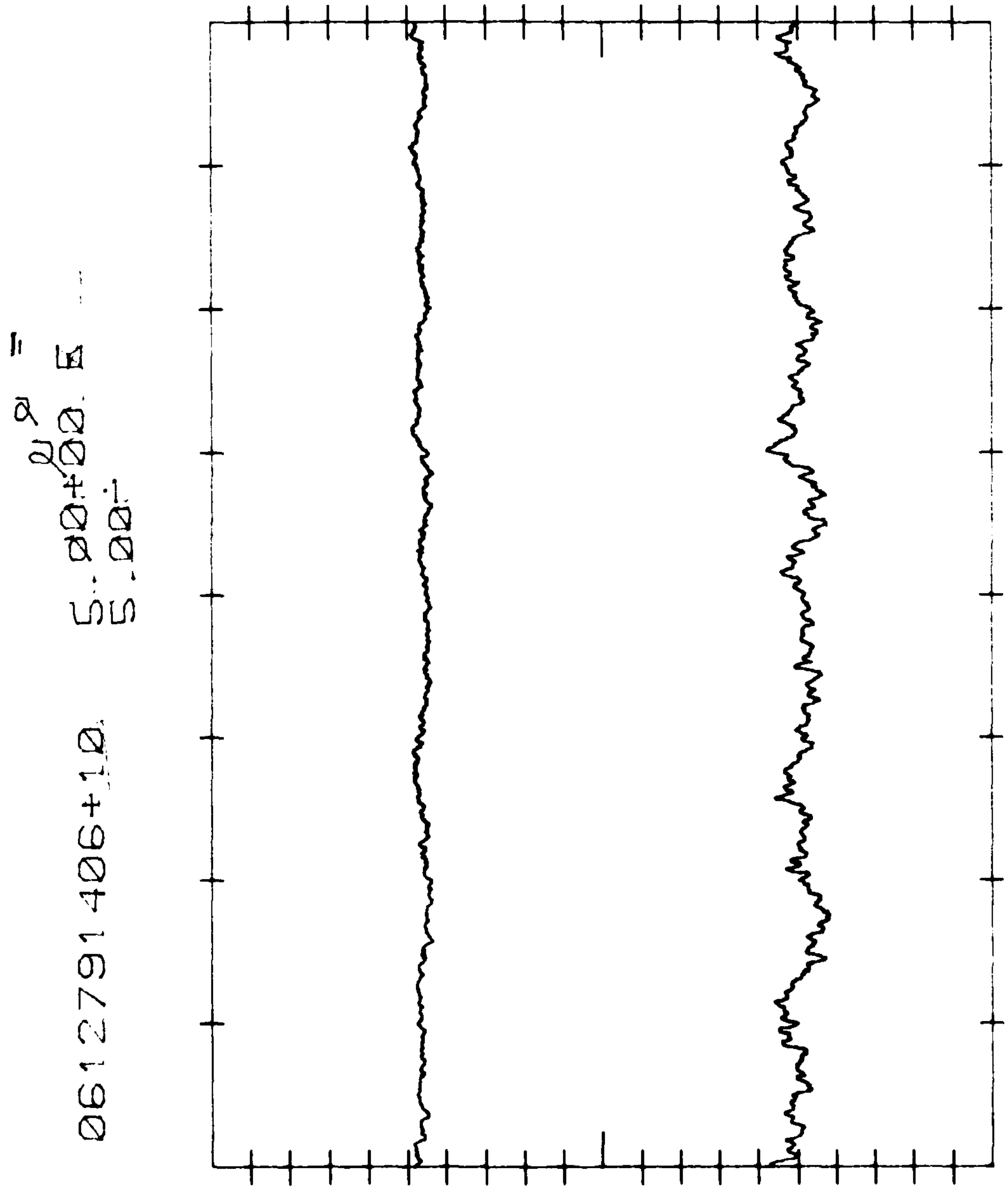
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REDUCED DATA LISTING

[illegible] TIME-[illegible]:38 DATE-06/15/79 PAGE 61

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	0.0000	0.0644	1.0209	0.0000	0.0000	1.0000	3.9270	
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	[illegible]	7.8538	1.0082	0.8944	[illegible]	1.0000	1.4787	
3	[illegible]	4.3174	0.2446	0.0395	1002.3411	27.5220	31.4270	27.7171
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	[illegible]	7.6381	1.0285	0.8421	0.9040	1.0000	1.5897	
5	[illegible]	4.3185	0.2180	0.0490	1003.9283	26.0044	29.9004	26.[illegible]
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	[illegible]	[illegible]	0.0042	0.8650	0.9025	0.7251	4.6980	[illegible]
	0.0000	7.3000	1.0208	0.8724	0.9117	1.0000	1.6794	
6	0.0000	4.3230	0.2029	0.0456	1007.6170	25.6005	30.1491	26.1365
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	[illegible]	0.0326	0.0051	0.9161	0.9150	0.6742	4.6224	4.6470
	[illegible]	6.6705	1.0374	0.9232	0.9259	1.0000	1.6591	

RAW DATA LISTING

[illegible] TIME=[illegible]:[illegible]:30 DATE=[illegible] PAGE [illegible]

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<****>	TMOUT	[illegible]	[illegible]	P27000	P27002	P27003	P27004	P27005	P27006
P27007	P27008	P27009	P27010	P27011	P27012	P27013	P27014	P27016	<****>

RECORD: 1 TIME:34375.54 SEC ID:1 NUM:0

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RECORD: 2 TIME:34413.80 SEC ID:1 NUM:0

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RECORD: 3 TIME:34424.14 SEC ID:1 NUM:0

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RECORD: 4 TIME:34434.50 SEC ID:1 NUM:0

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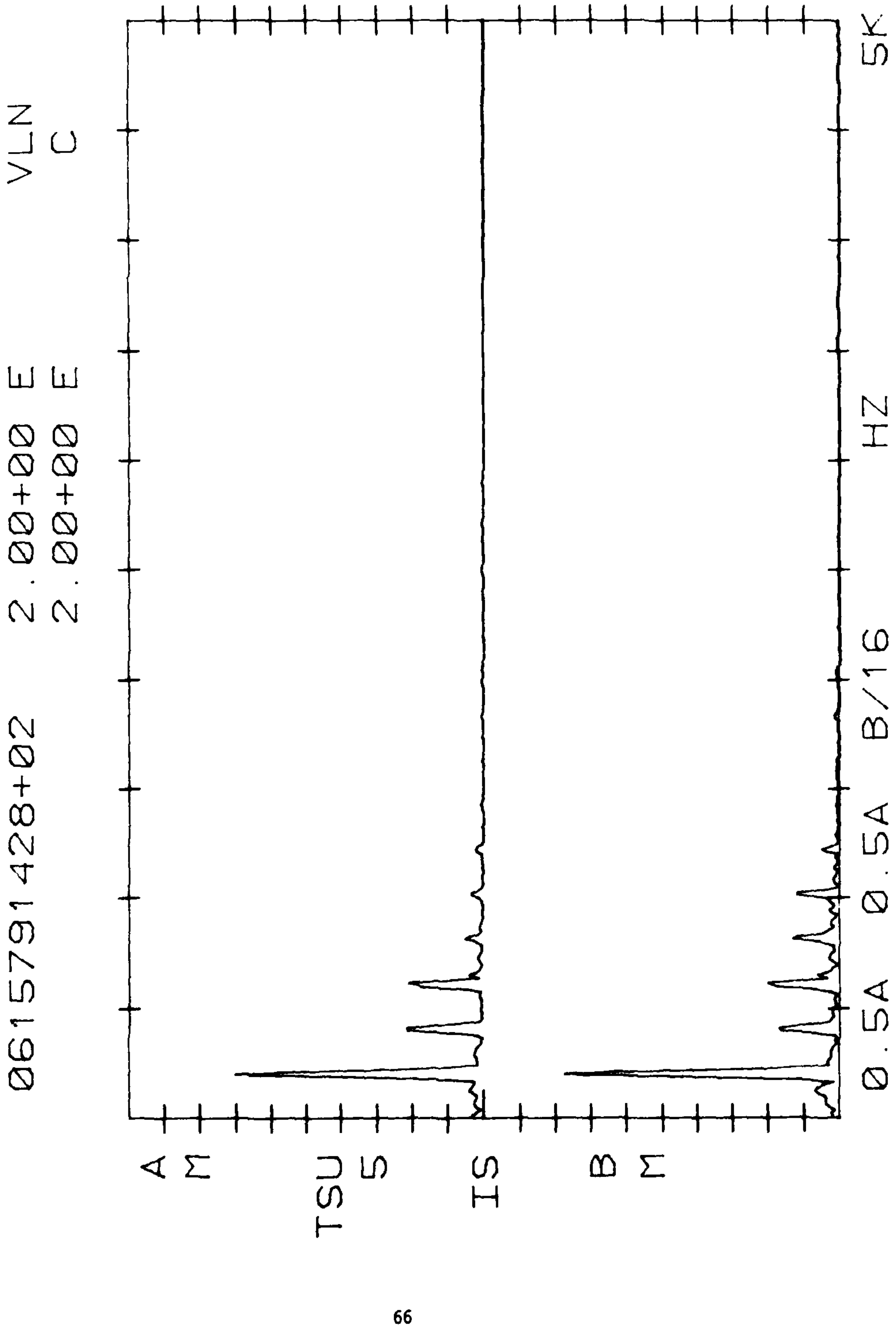
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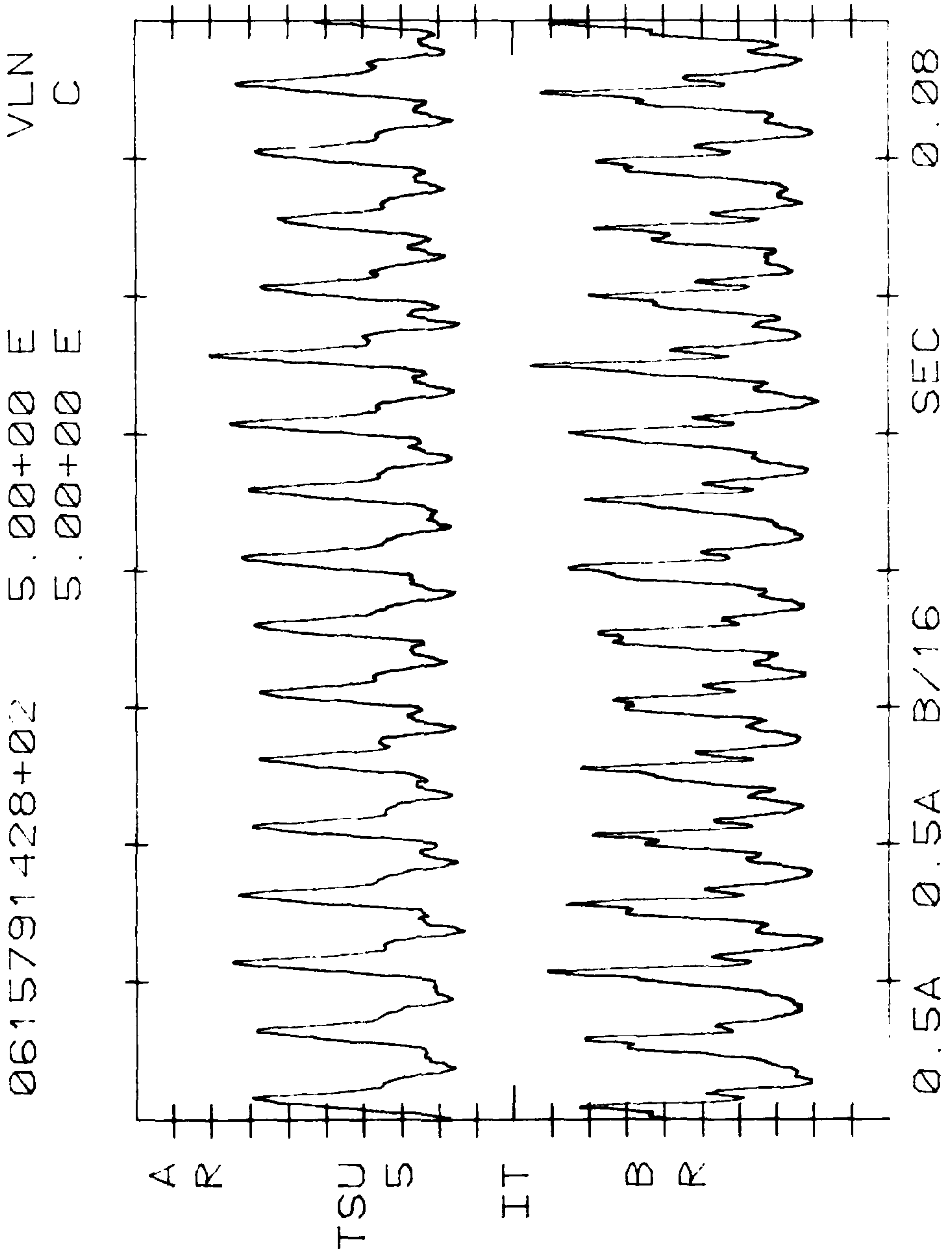
Ø.5A
B/16
HZ
5K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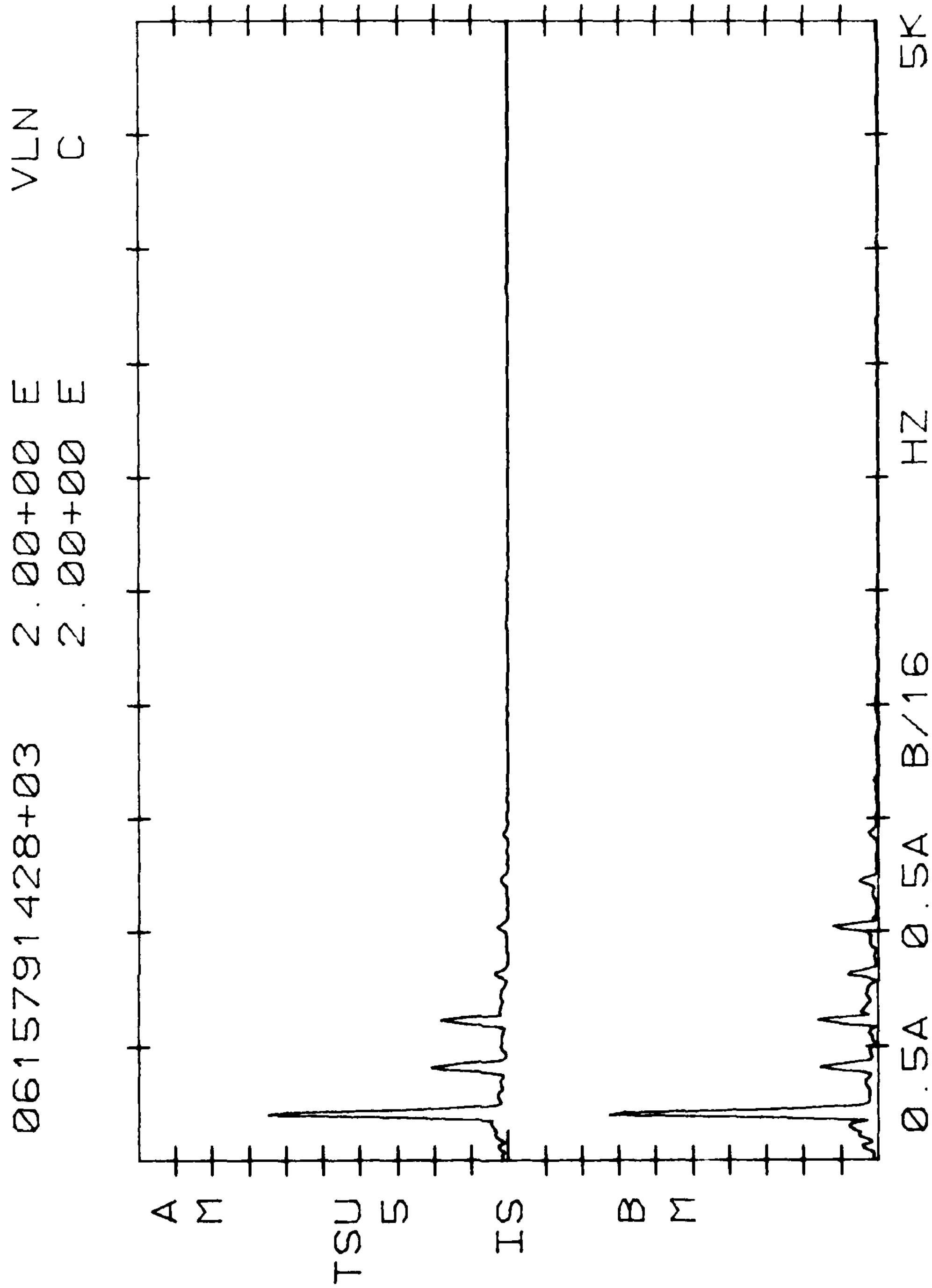
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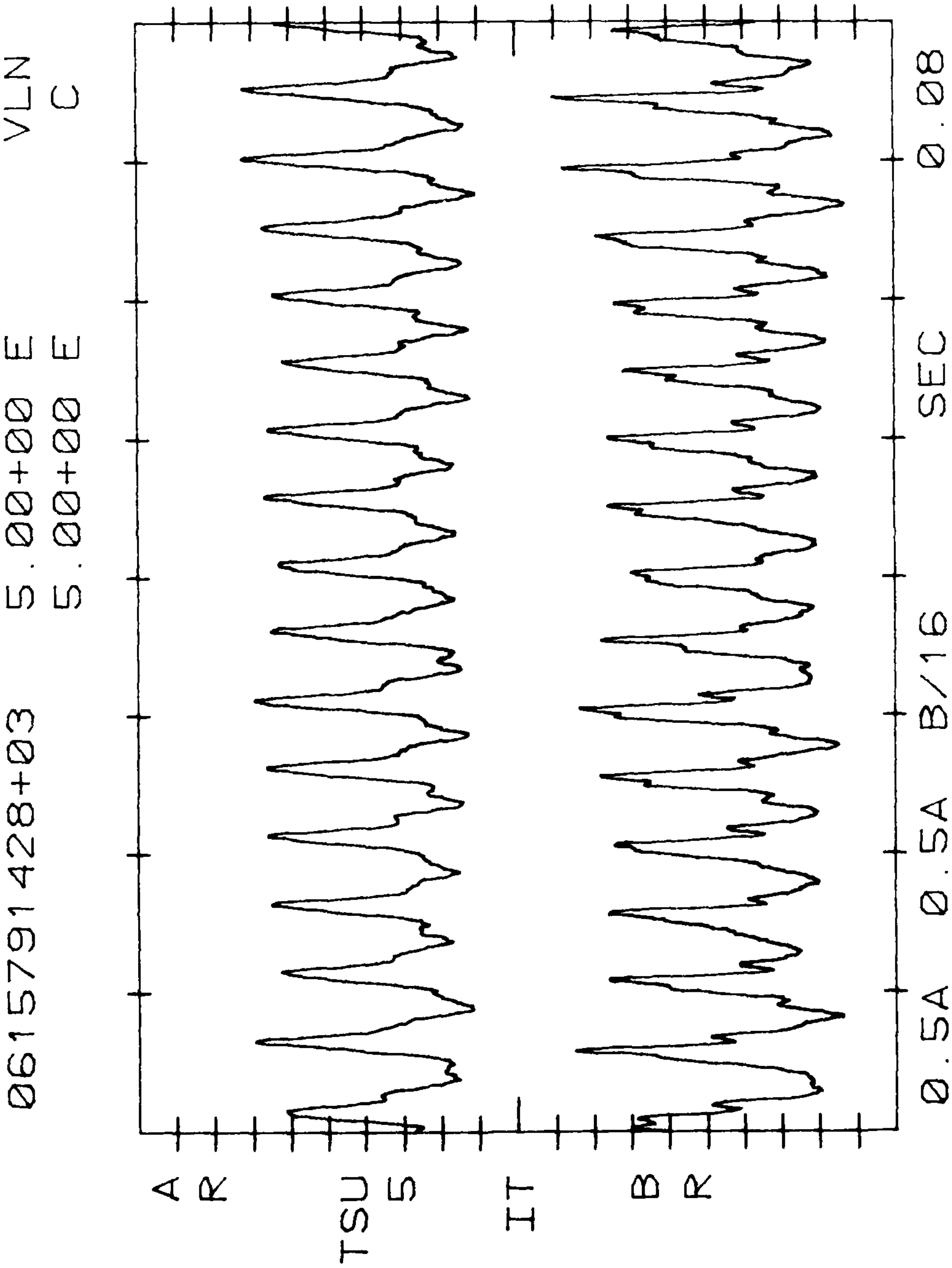
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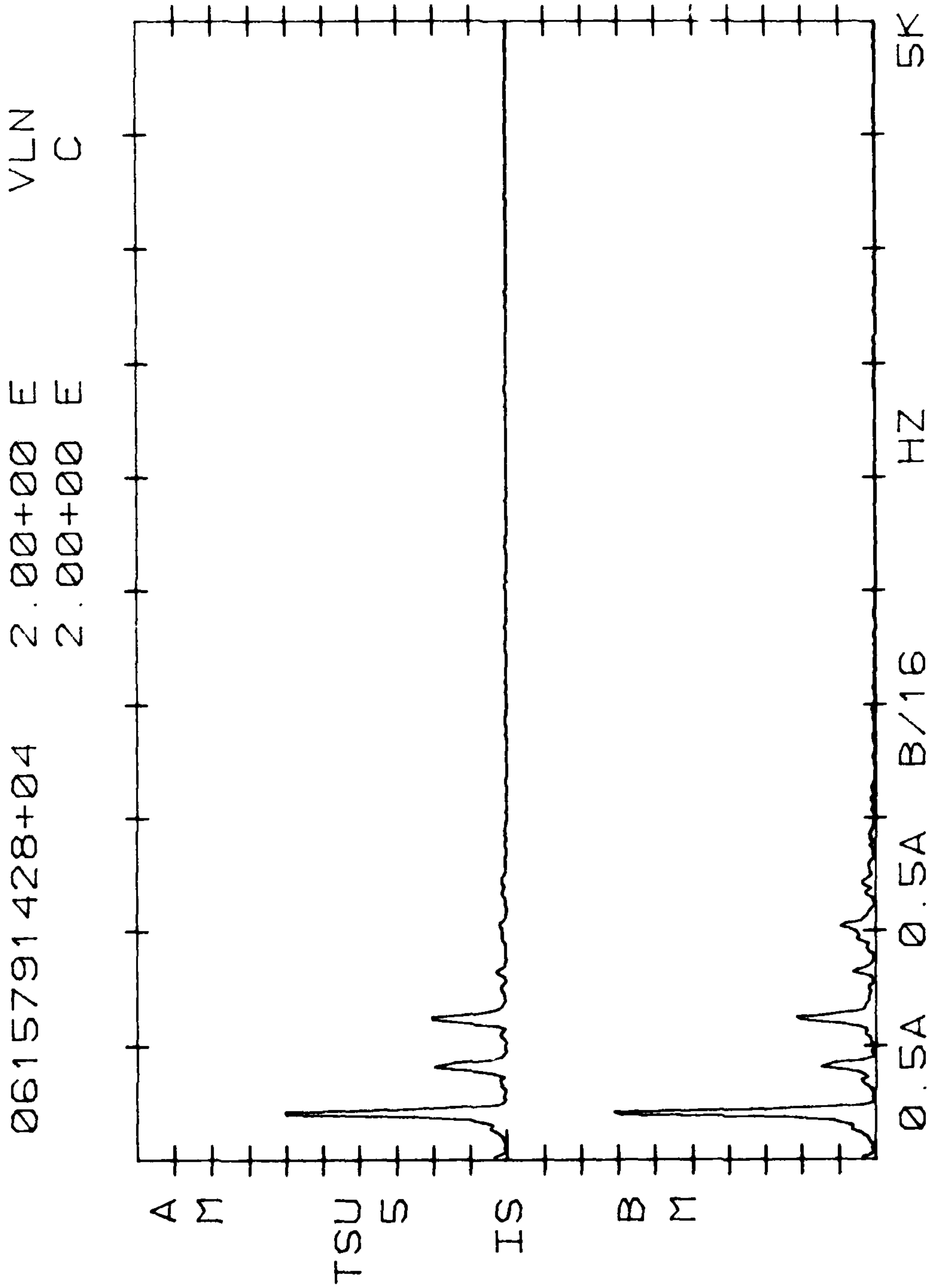
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B M
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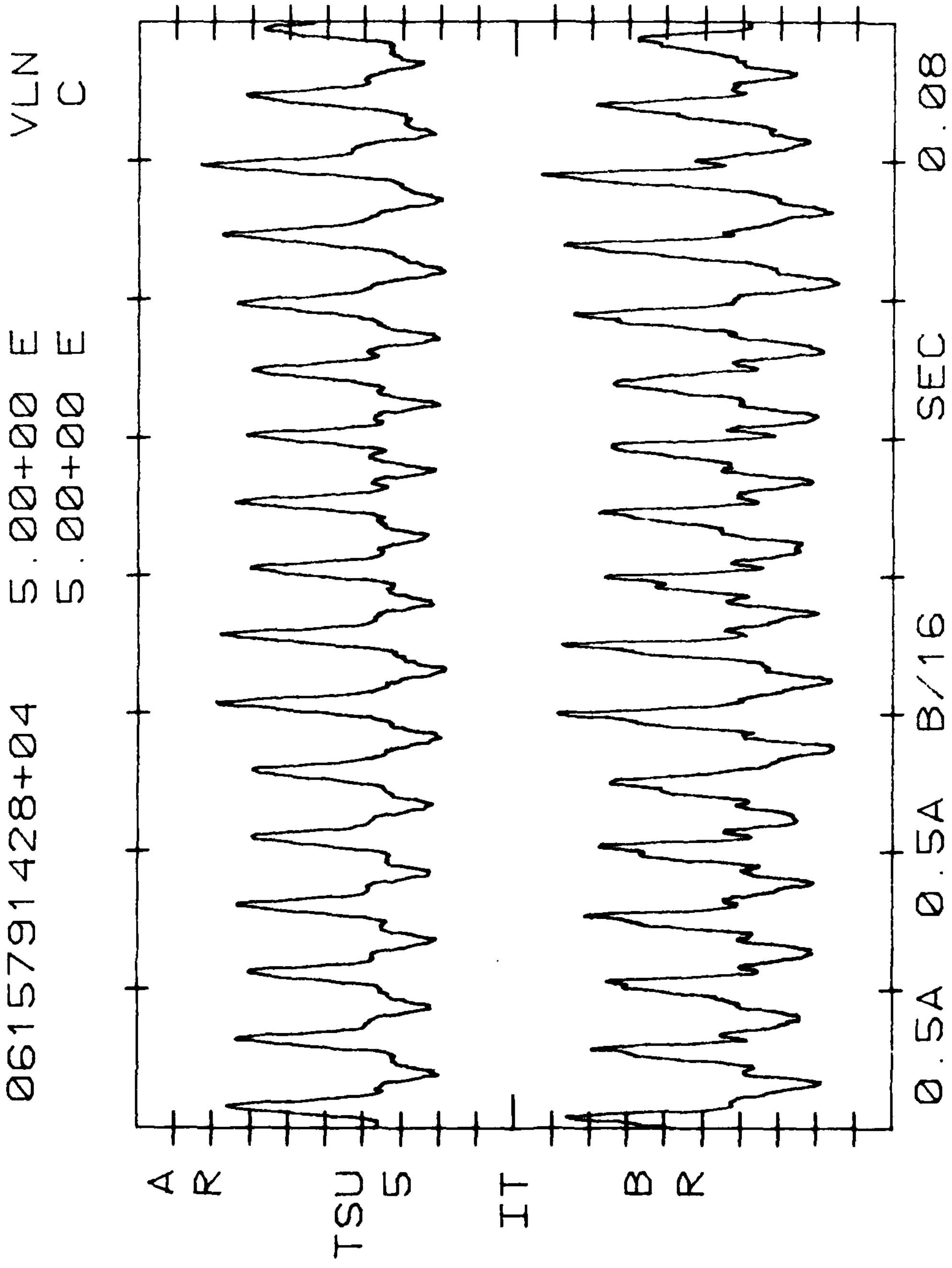
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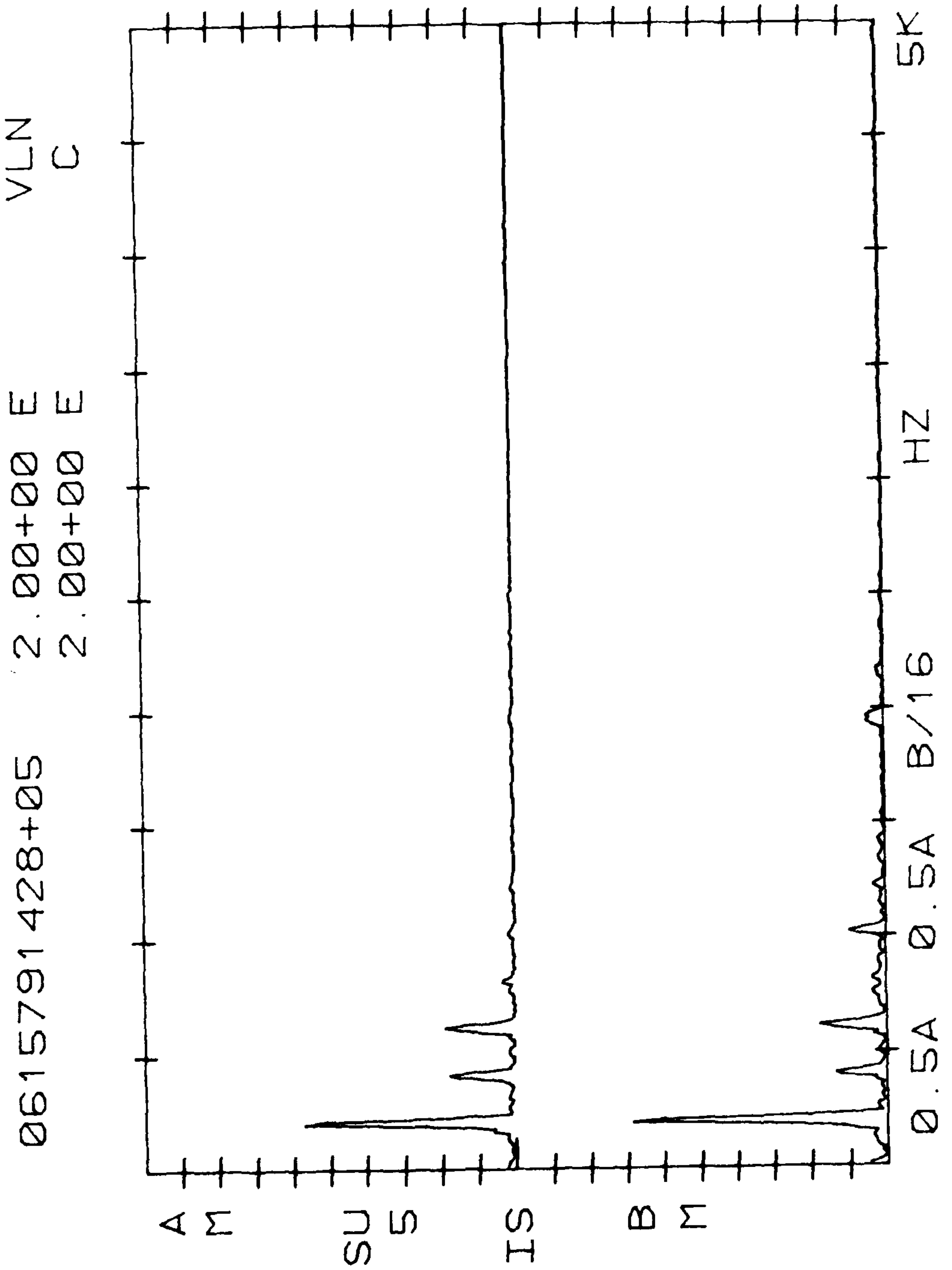
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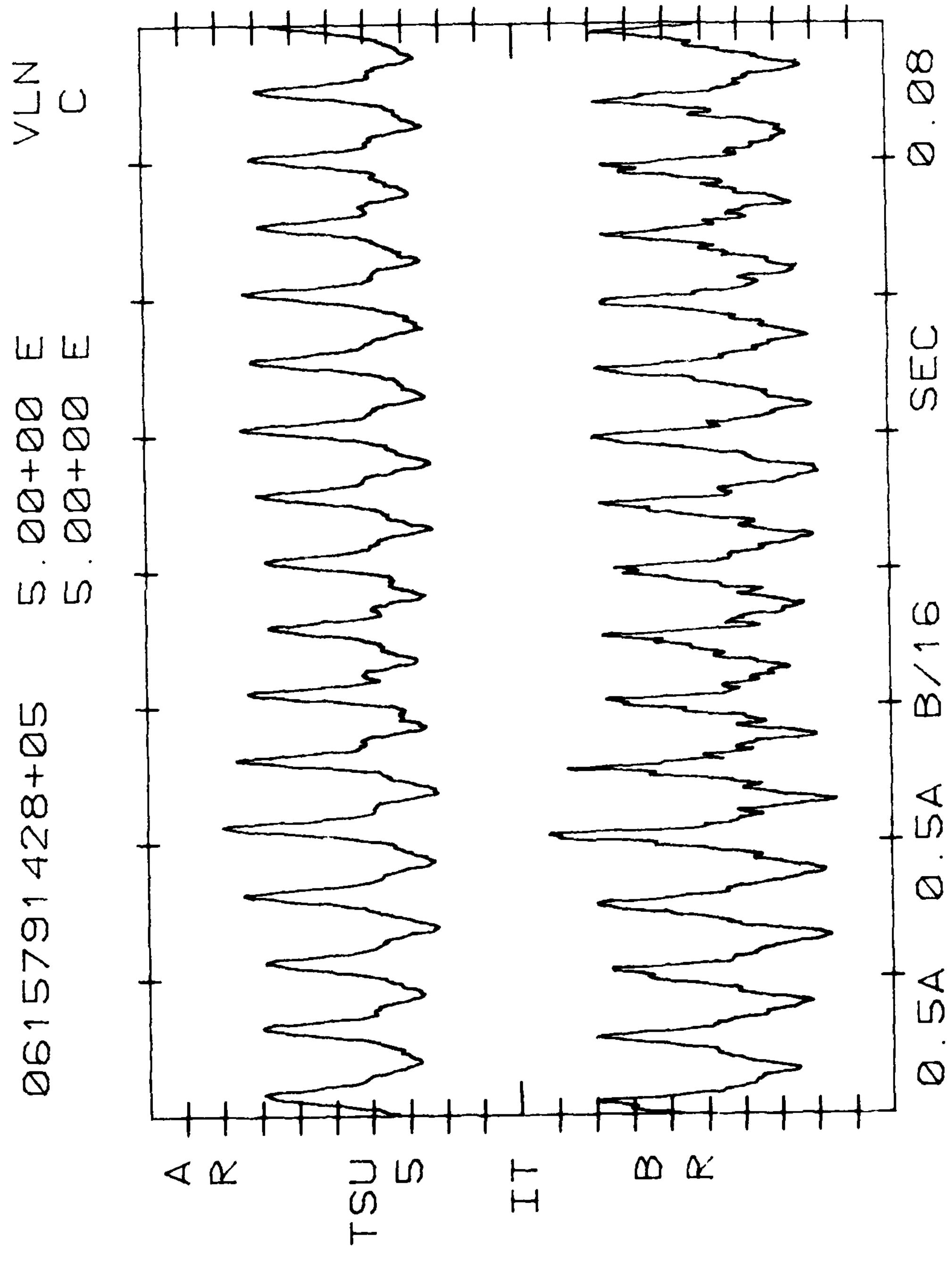
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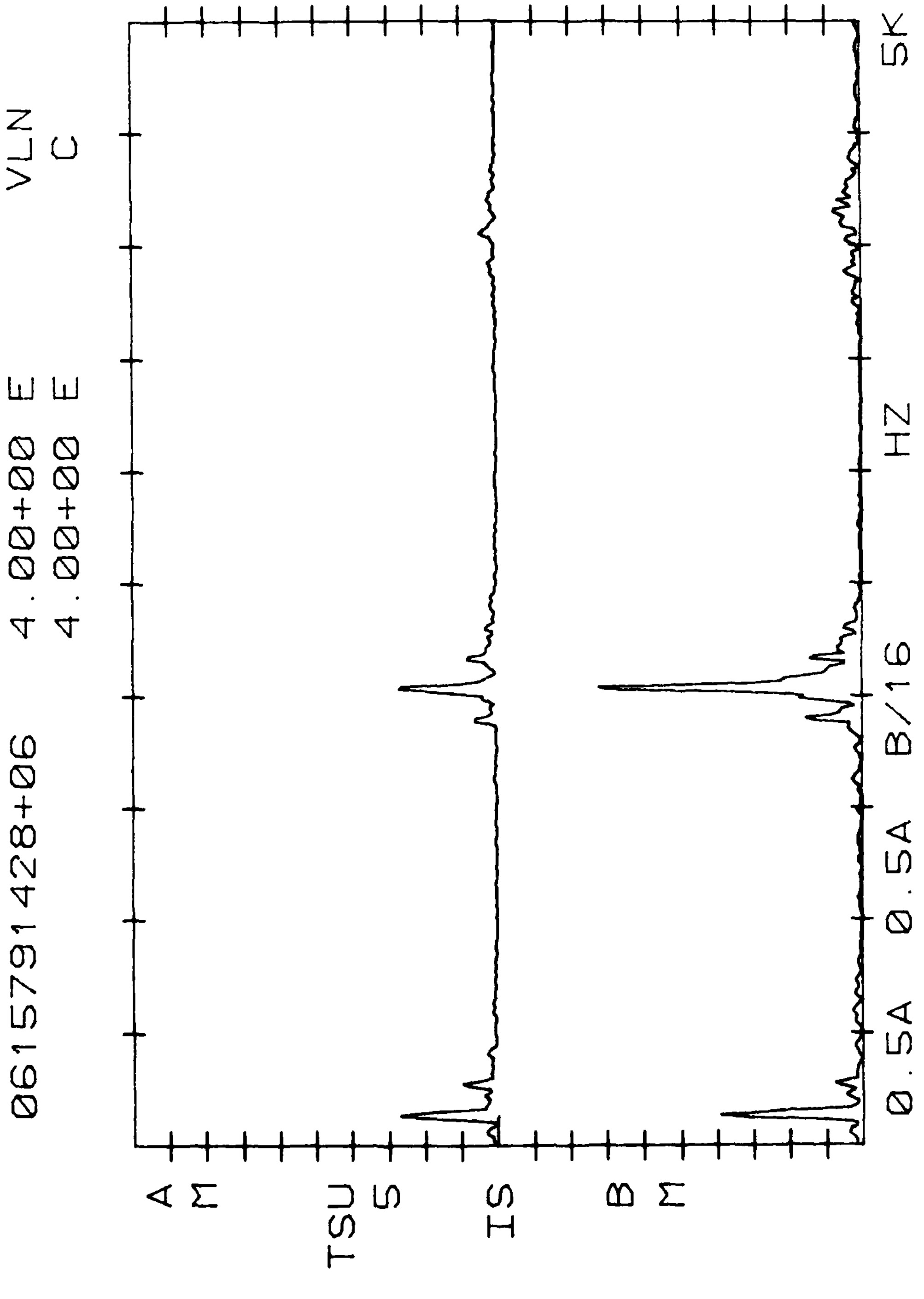
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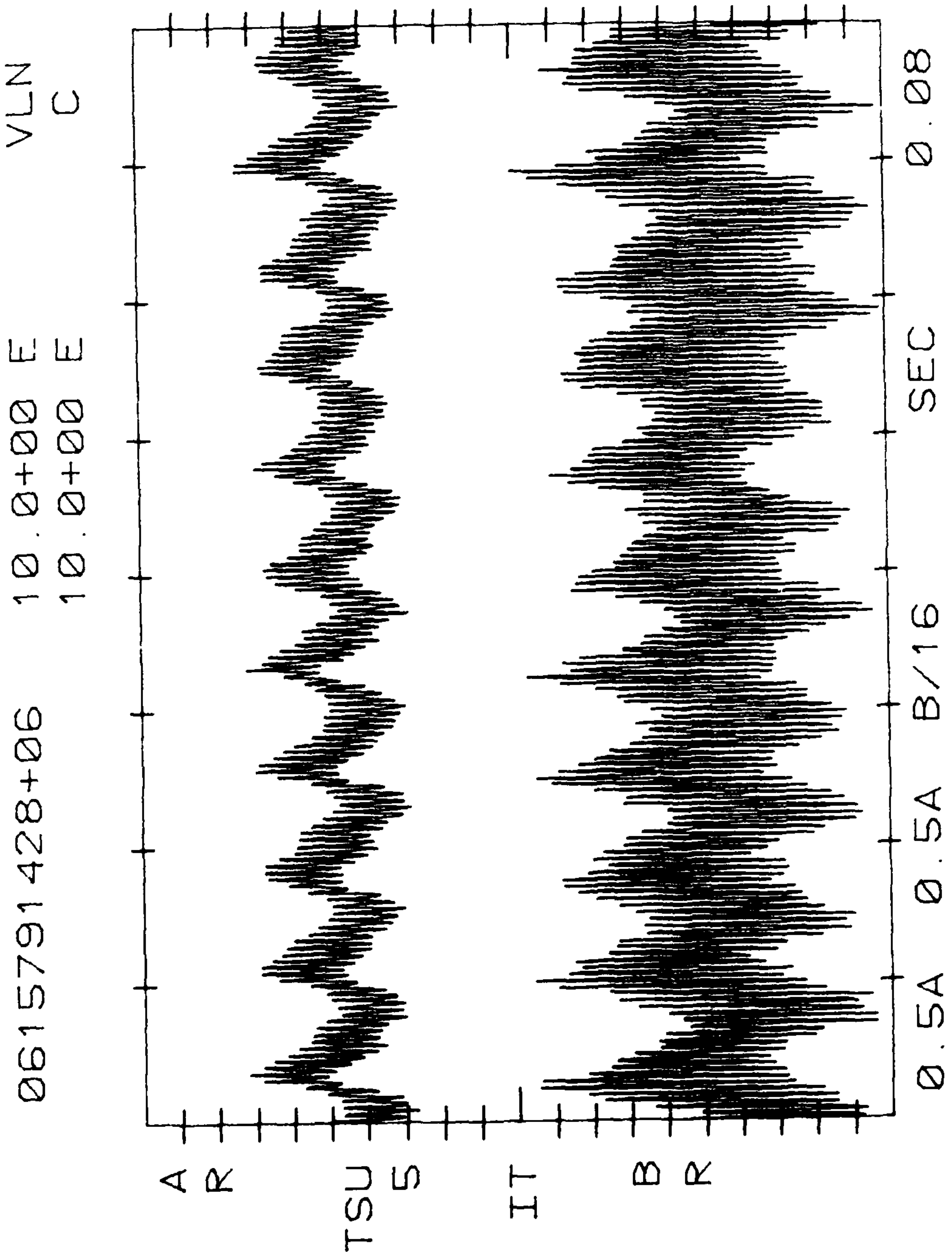
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REDUCED DATA LISTING

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** F05 **

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	P27007	P27008	P27009	P27010	P27011	P27012	P27013	P27014	P27016	<****>
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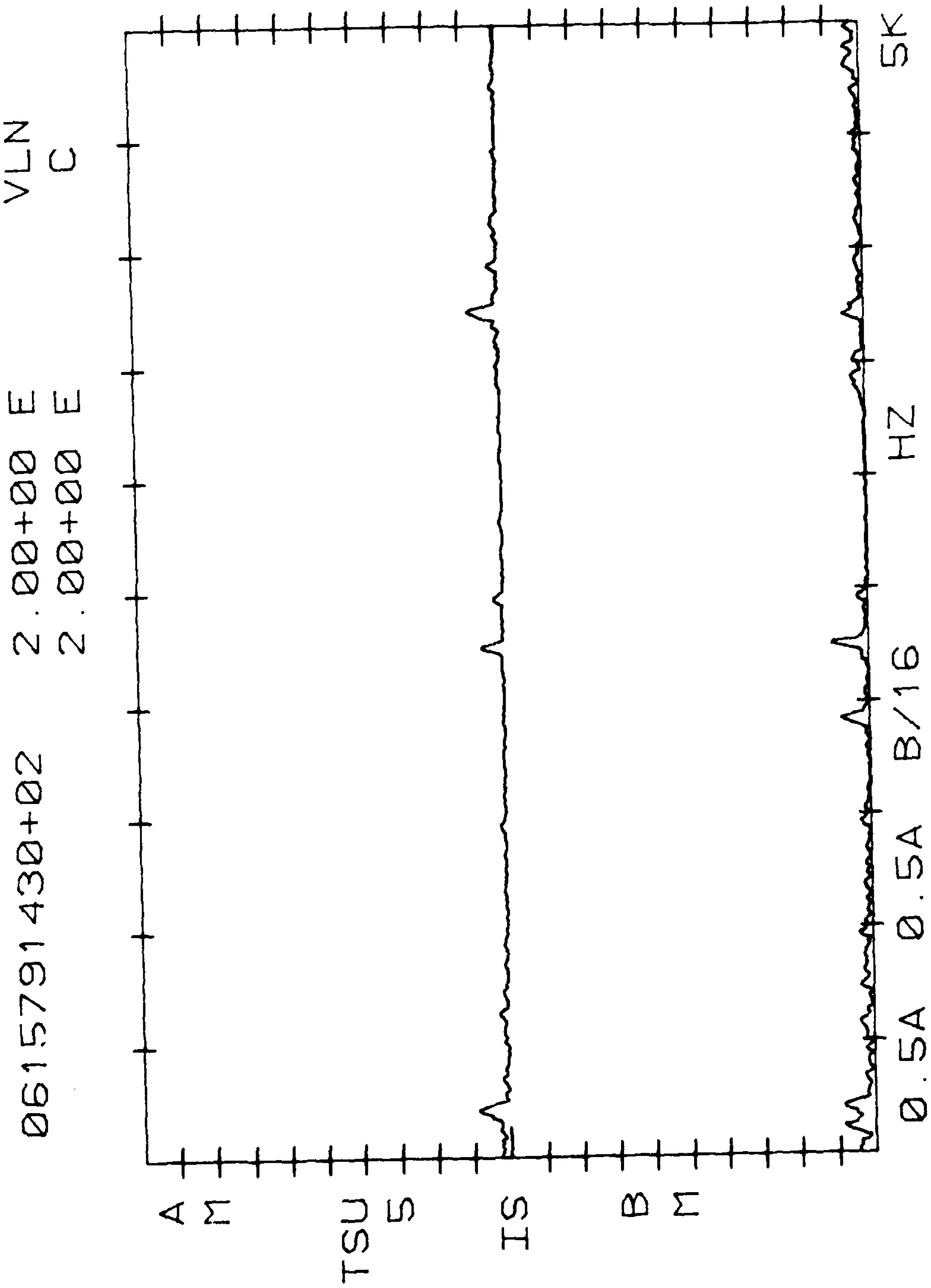
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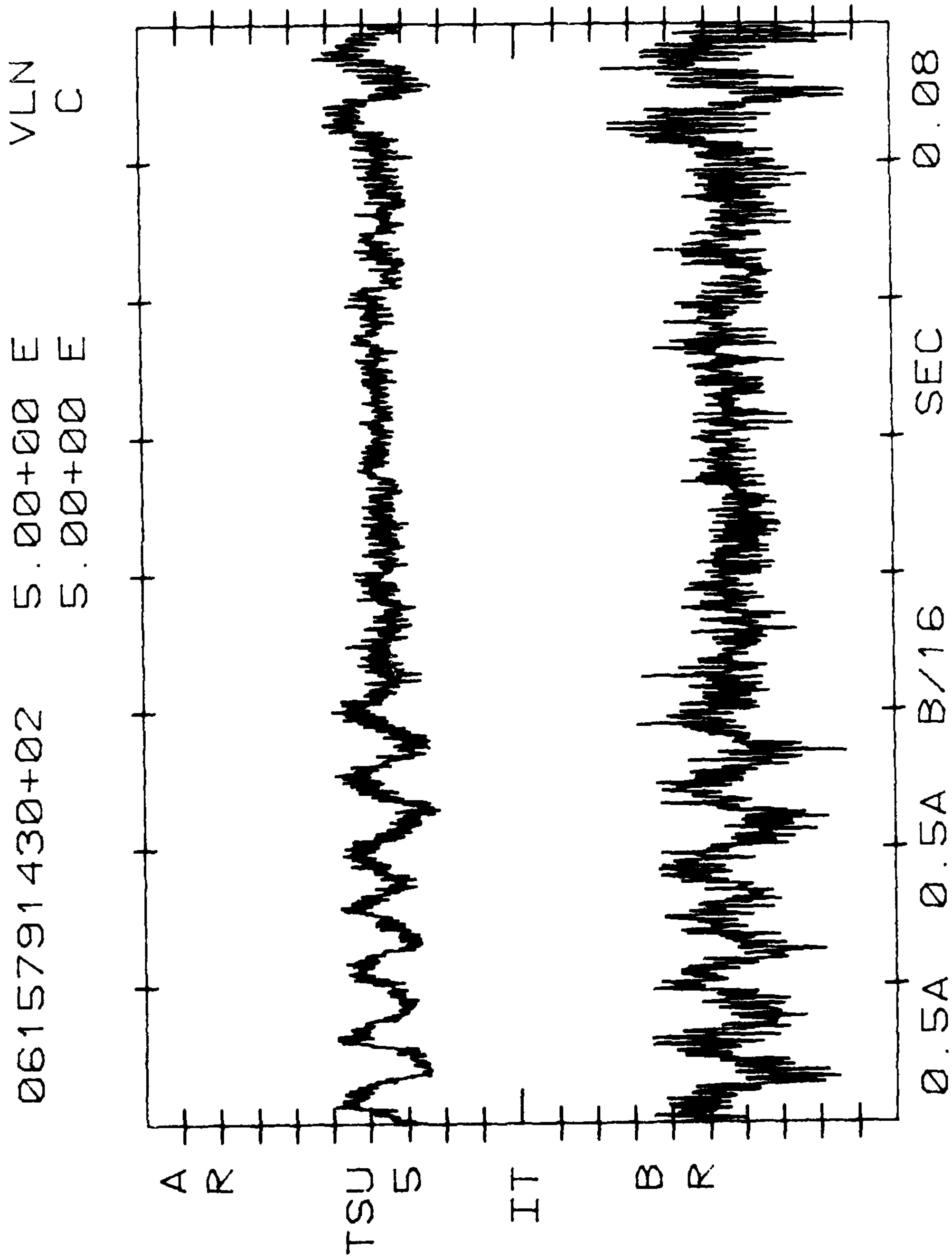
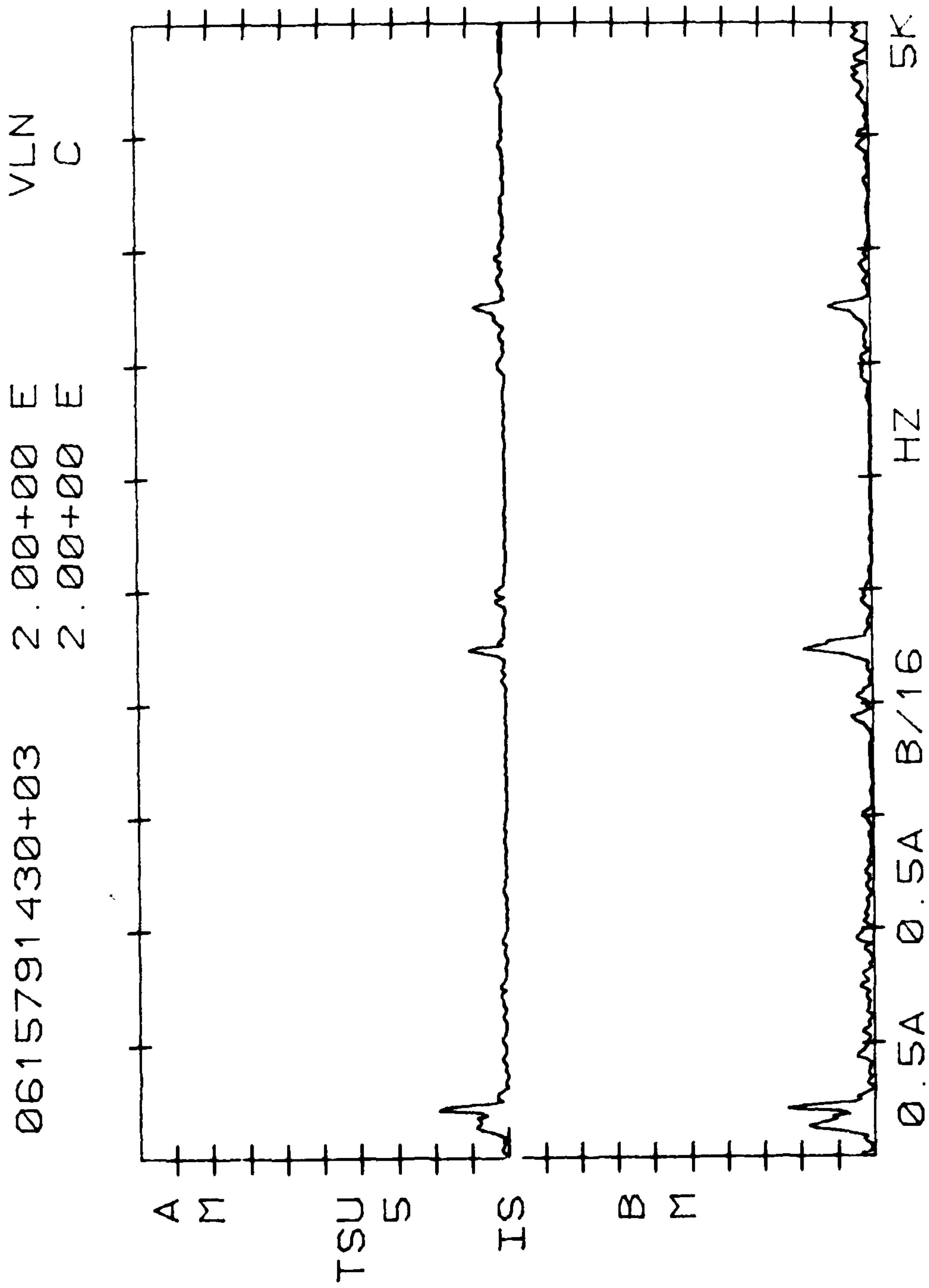
Part I

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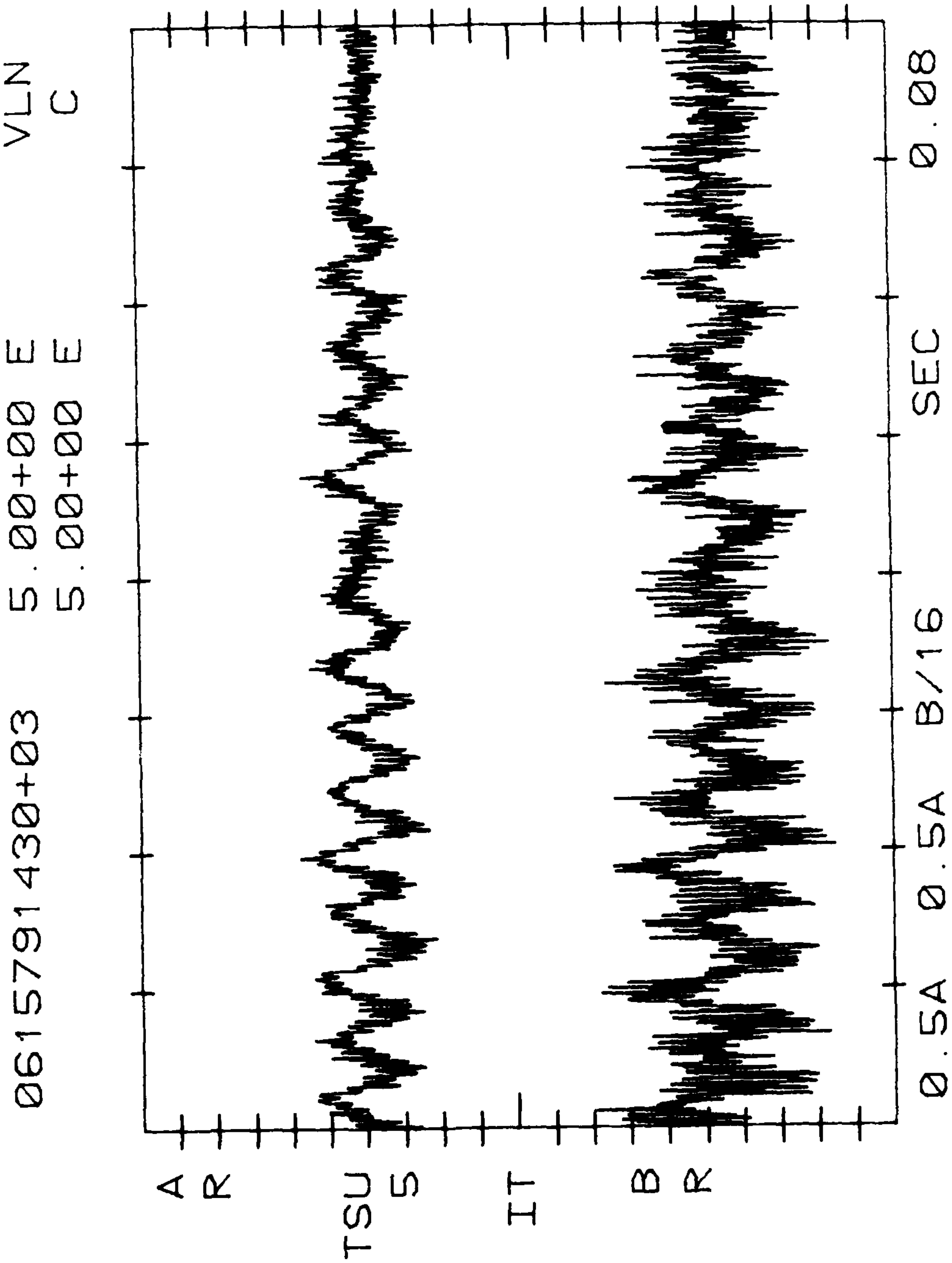
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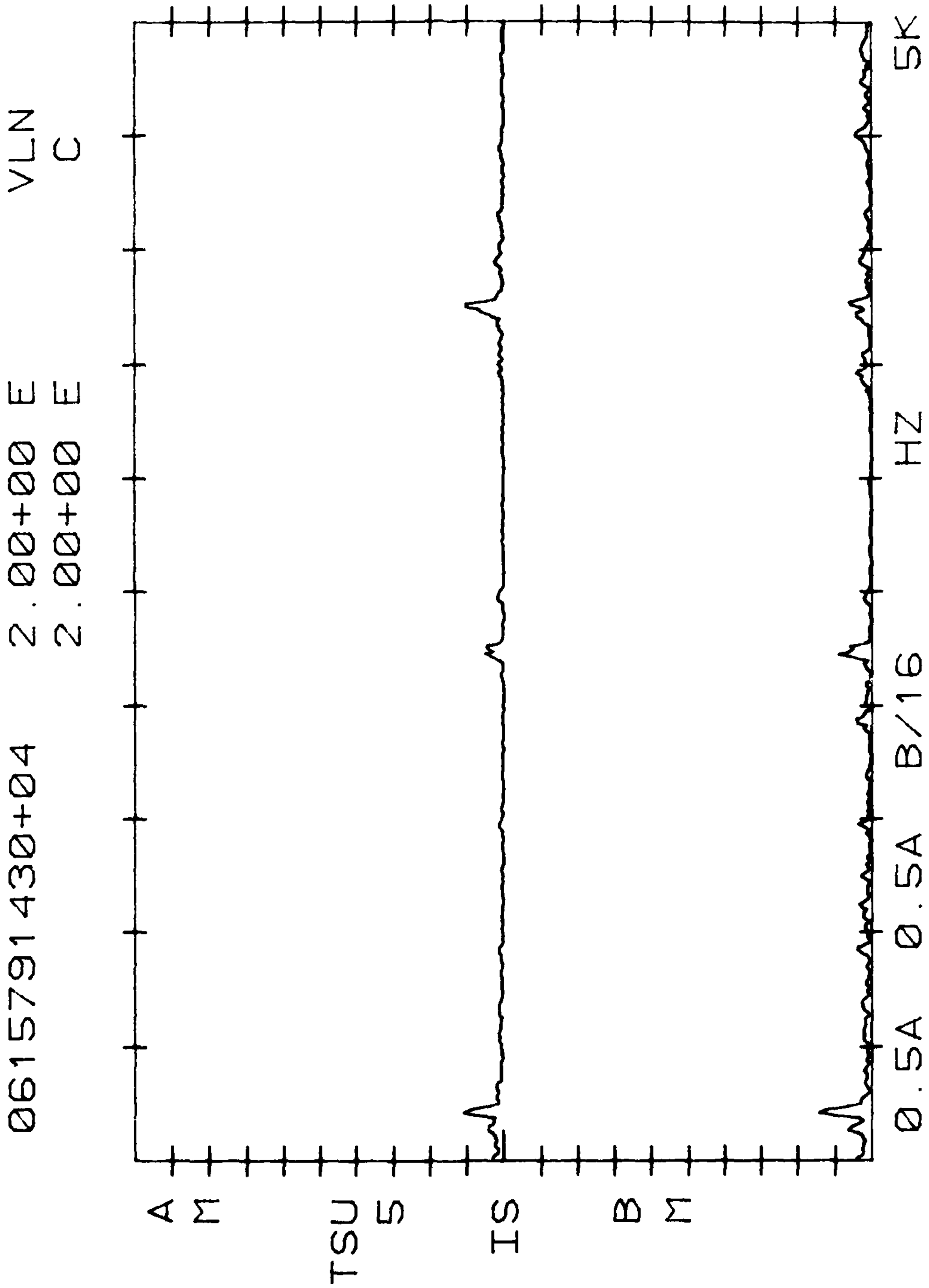
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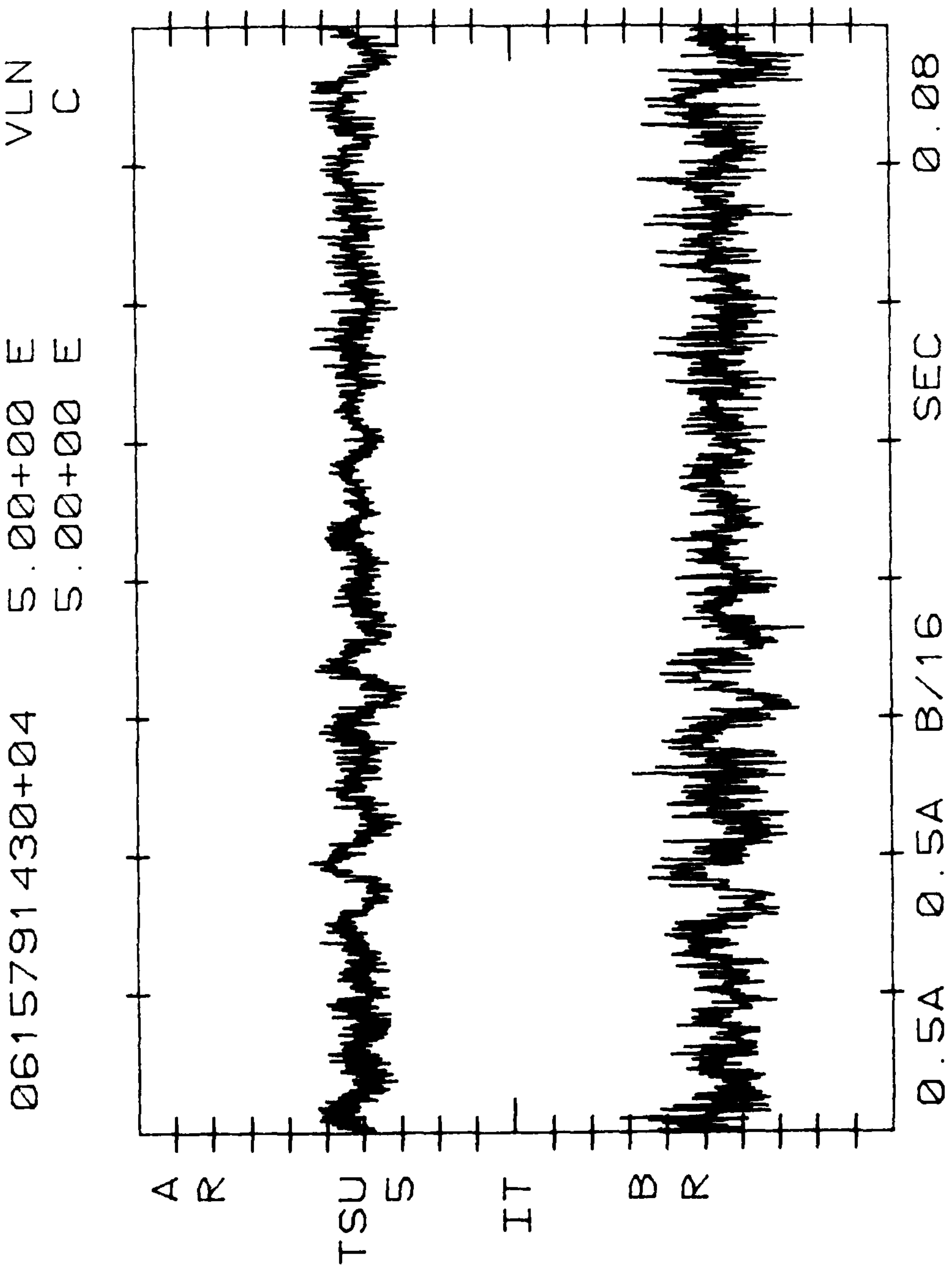
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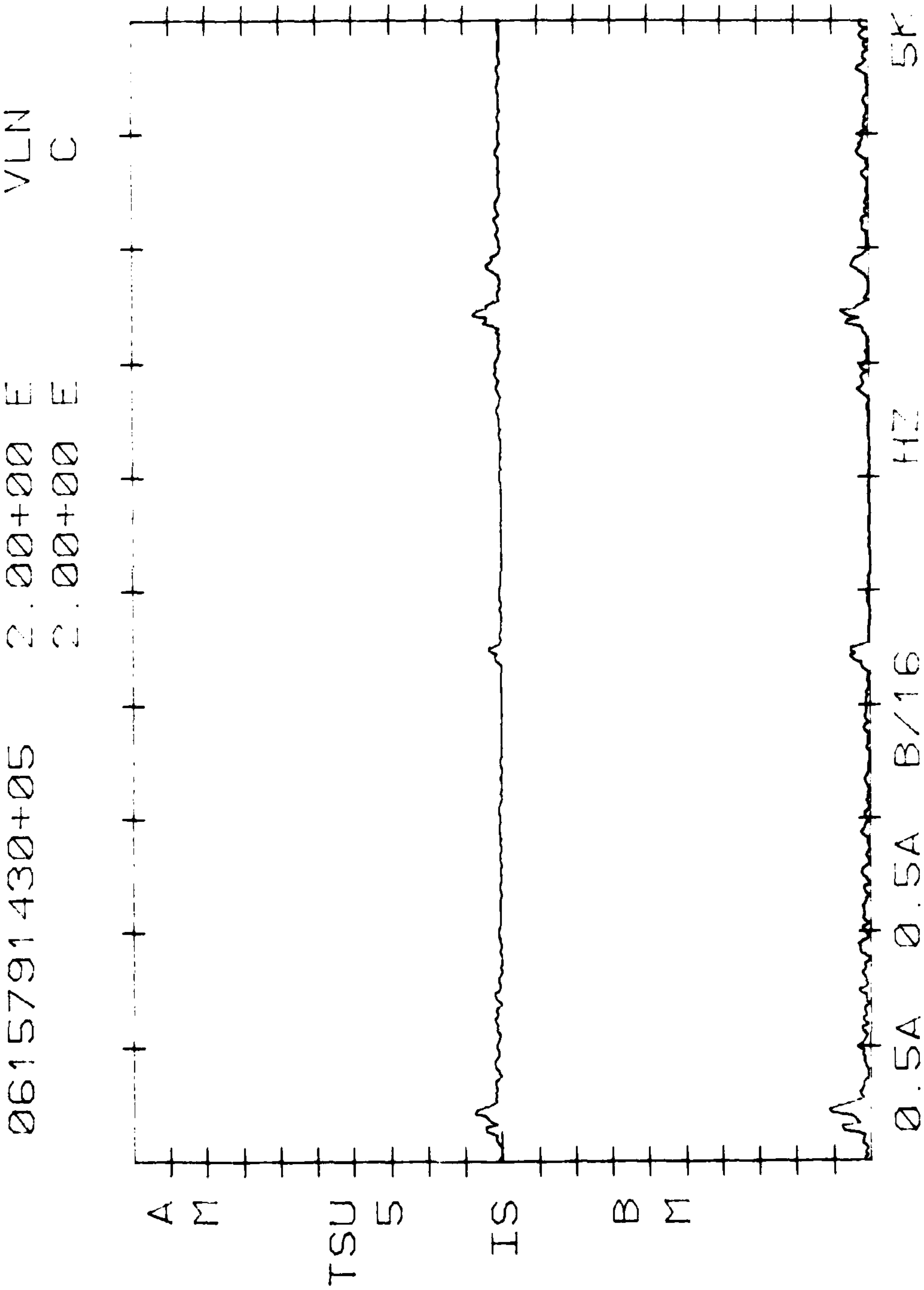
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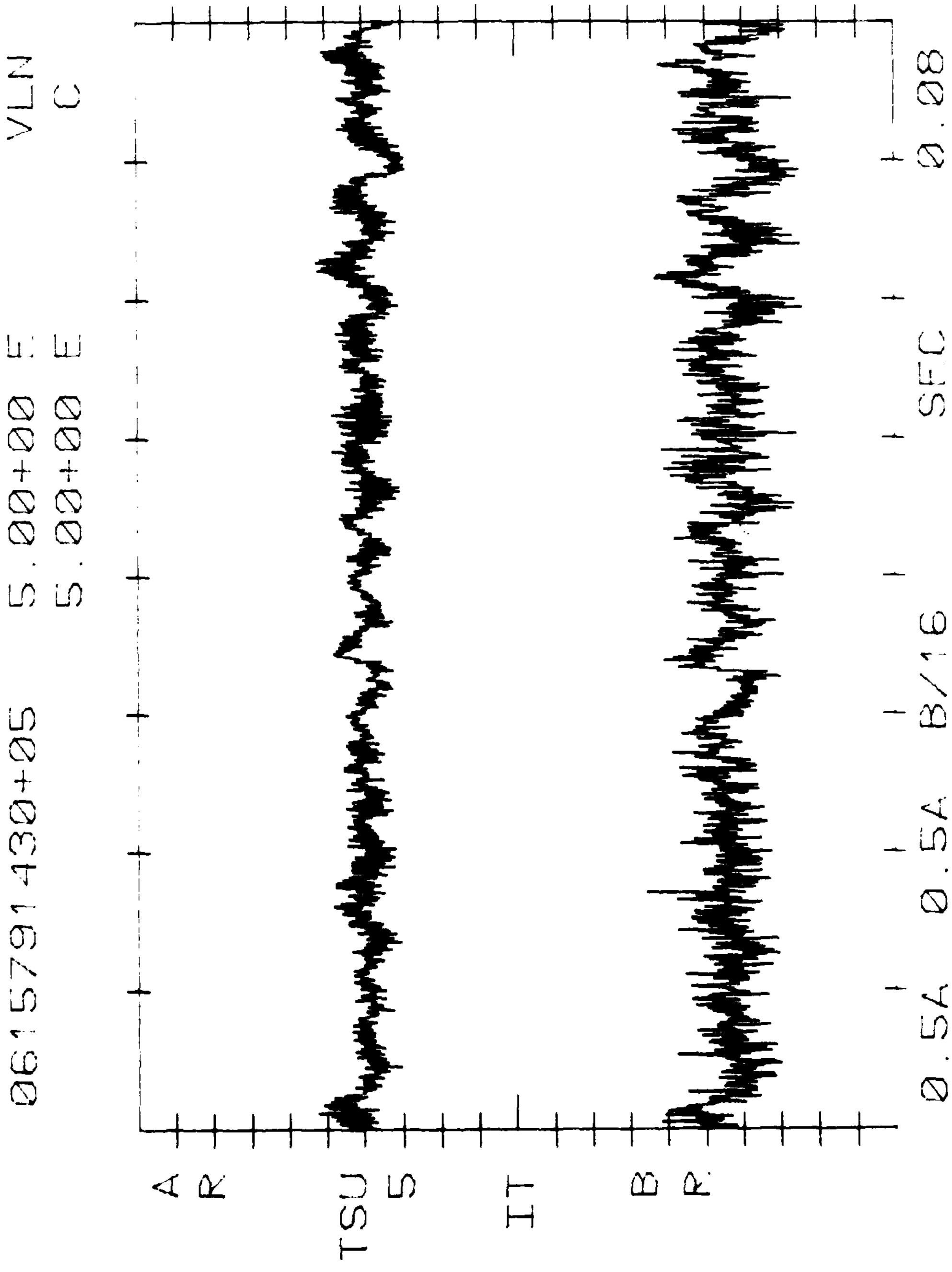
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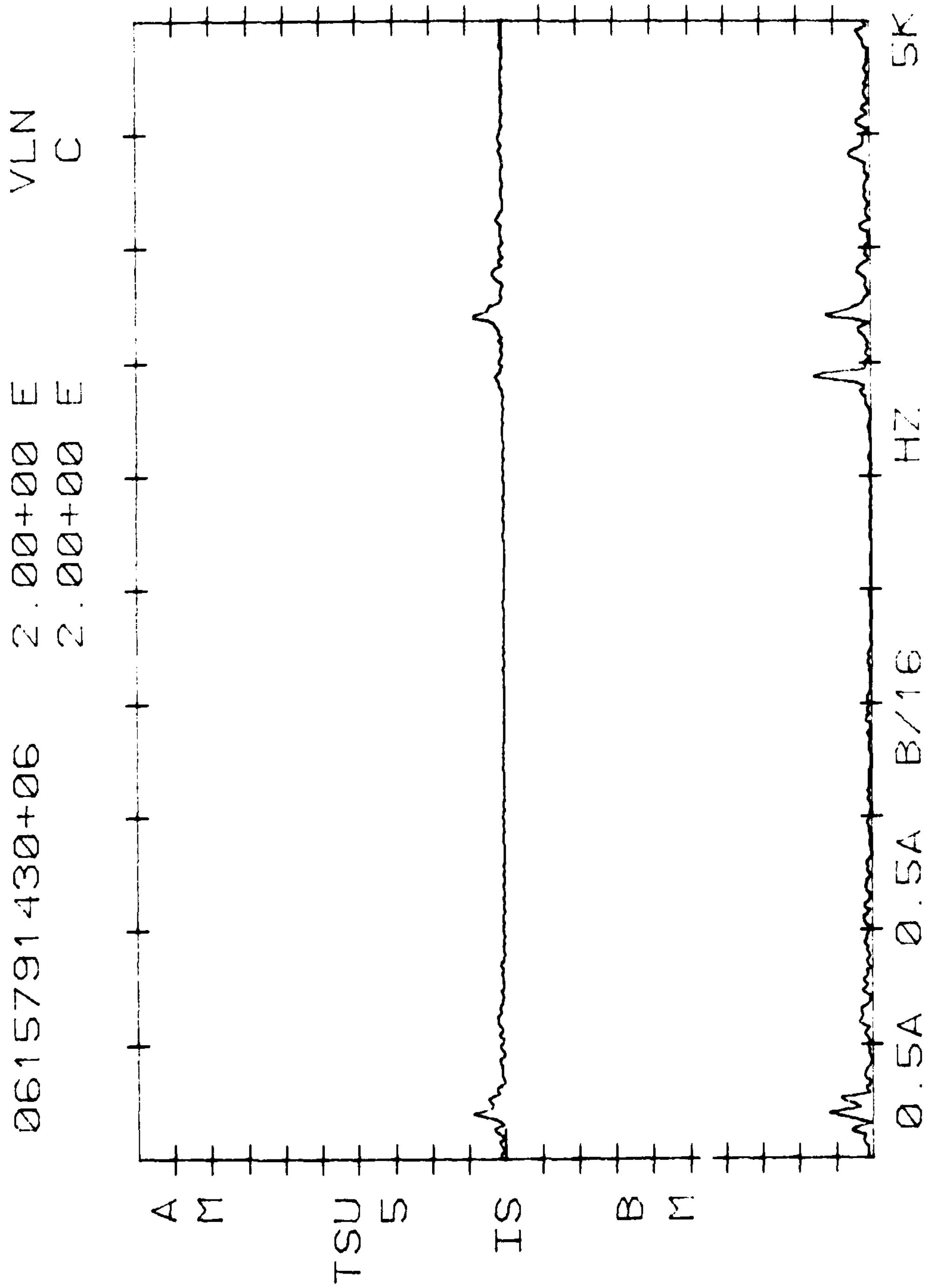
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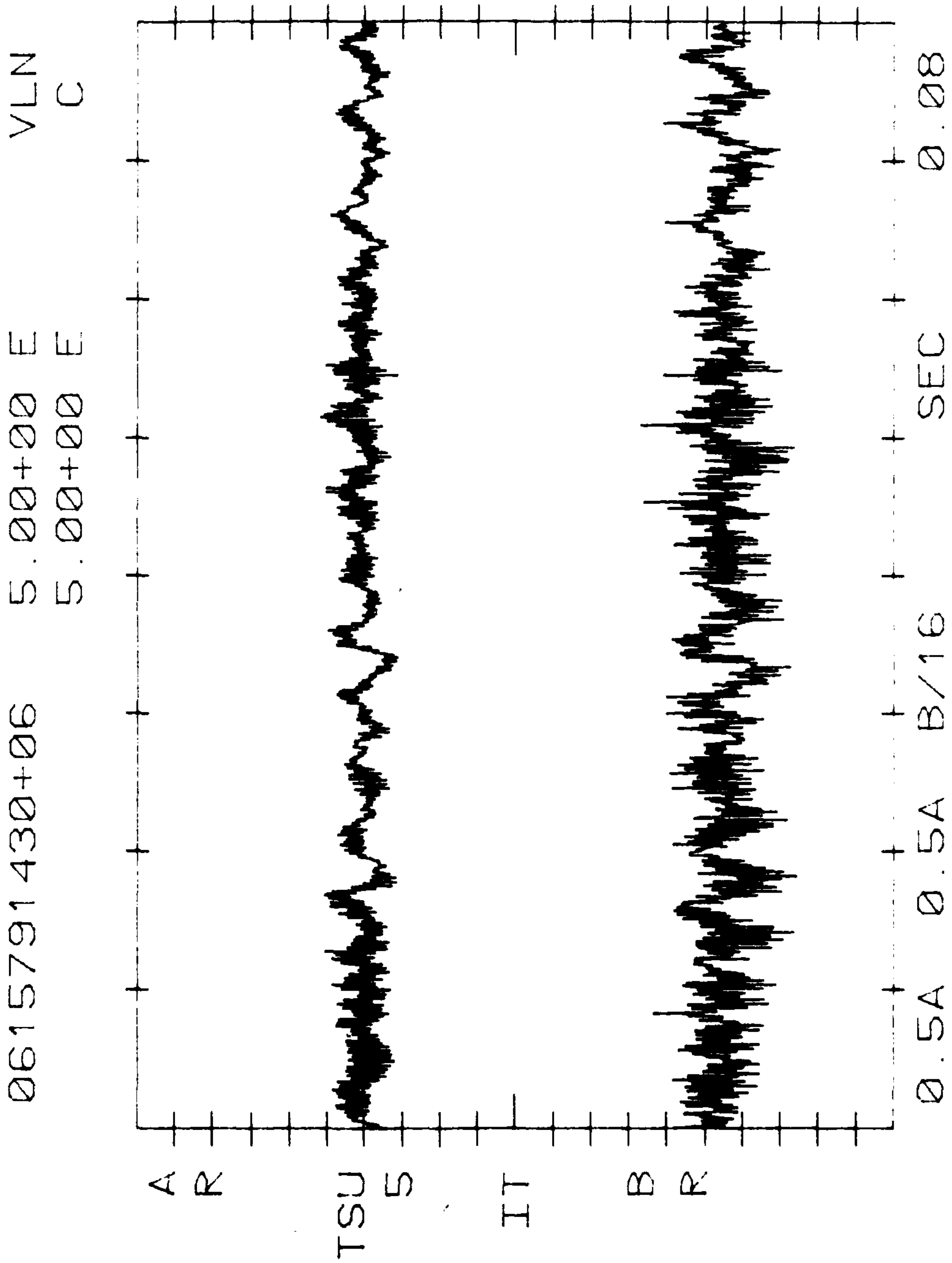
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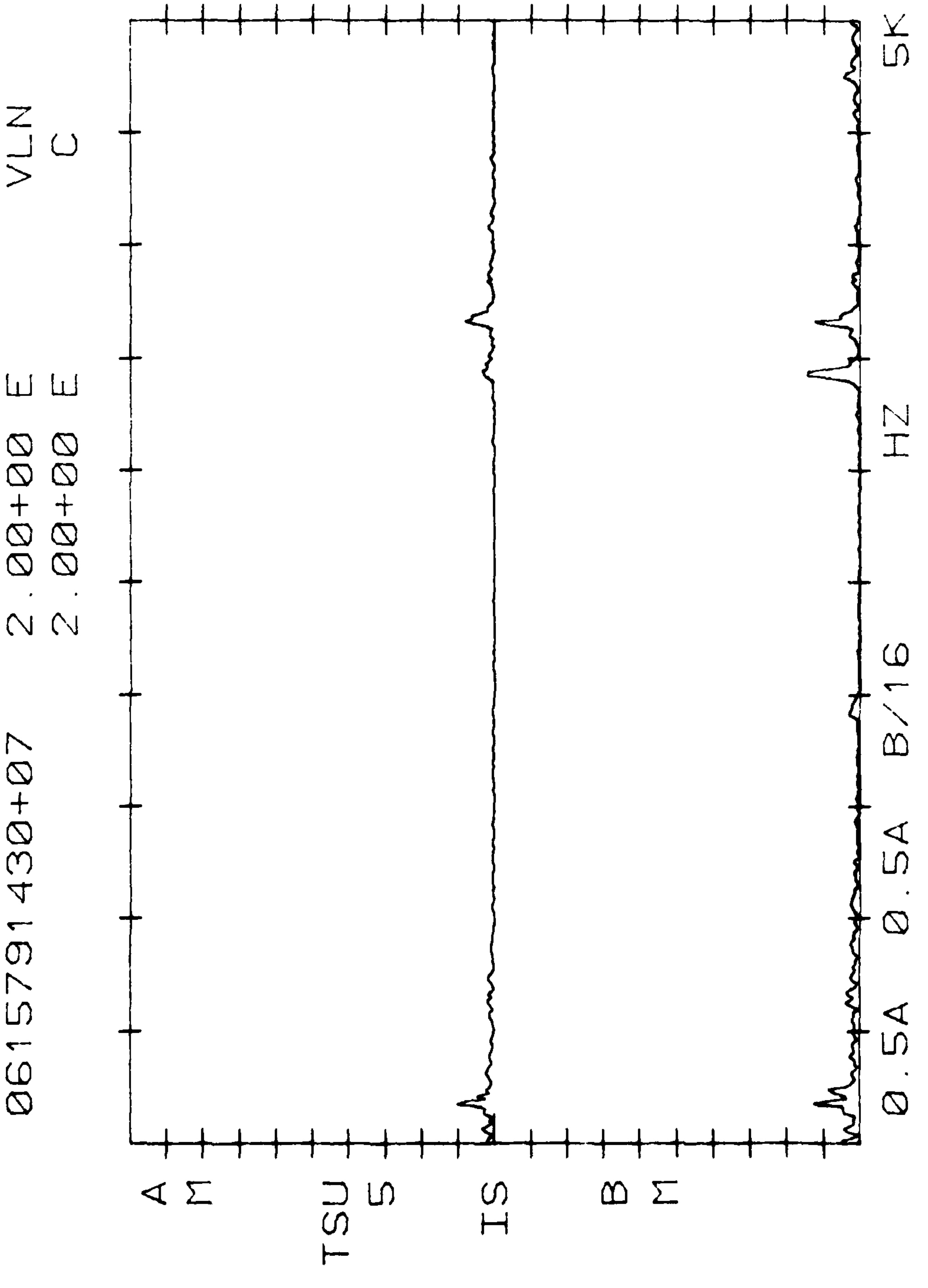
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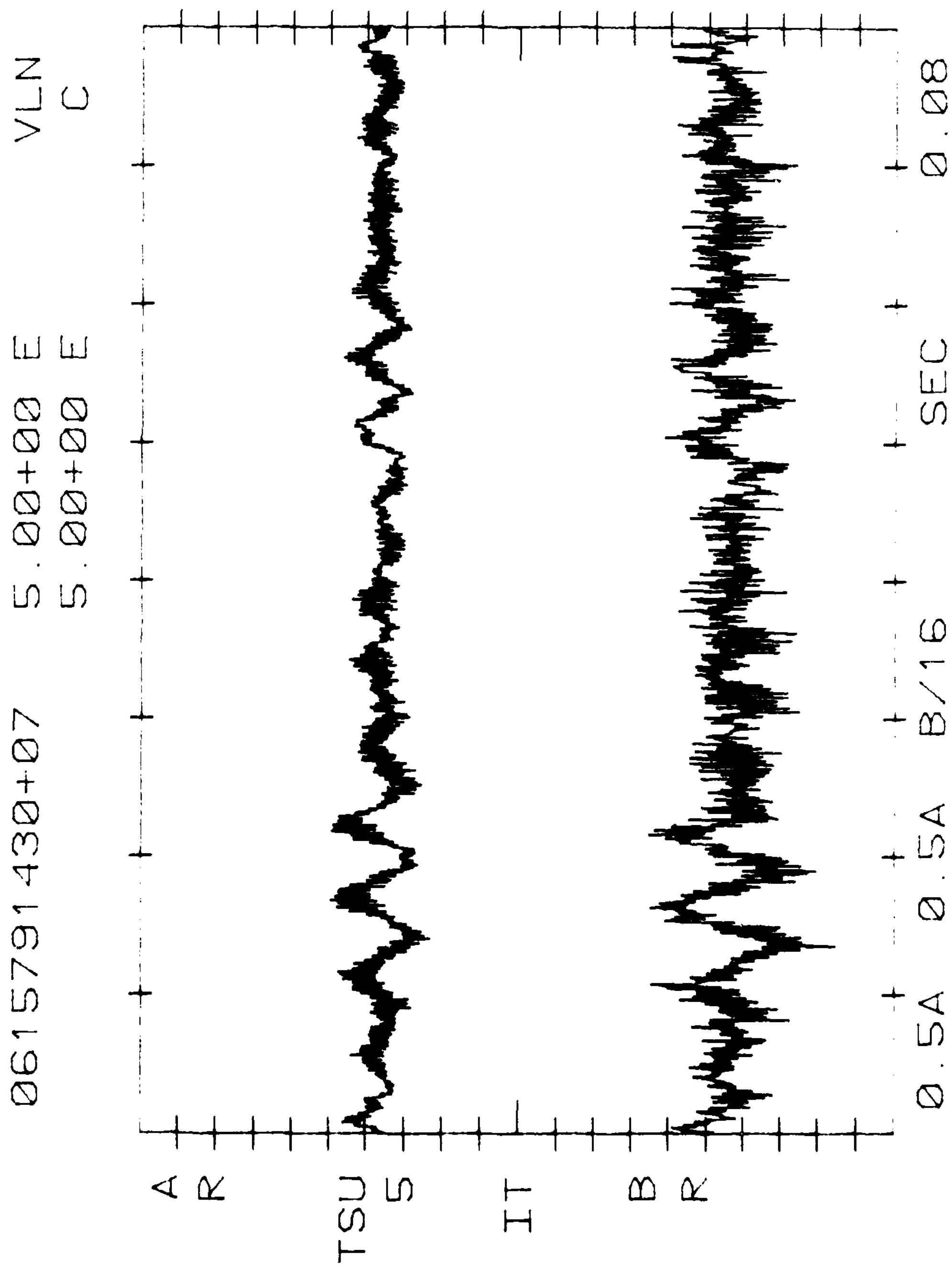
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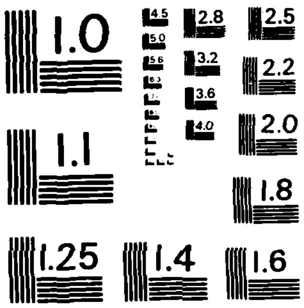
AD-A111 355 COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES PART I PARAMETRIC..(U) AIR FORCE WRIGHT AERONAUTICAL LABS WRIGHT-PATTERSON AFB OH D L DAVIS JUL 81 2/4

UNCLASSIFIED AFWAL-TR-81-2047-PT-1 F/G 21/5 NL



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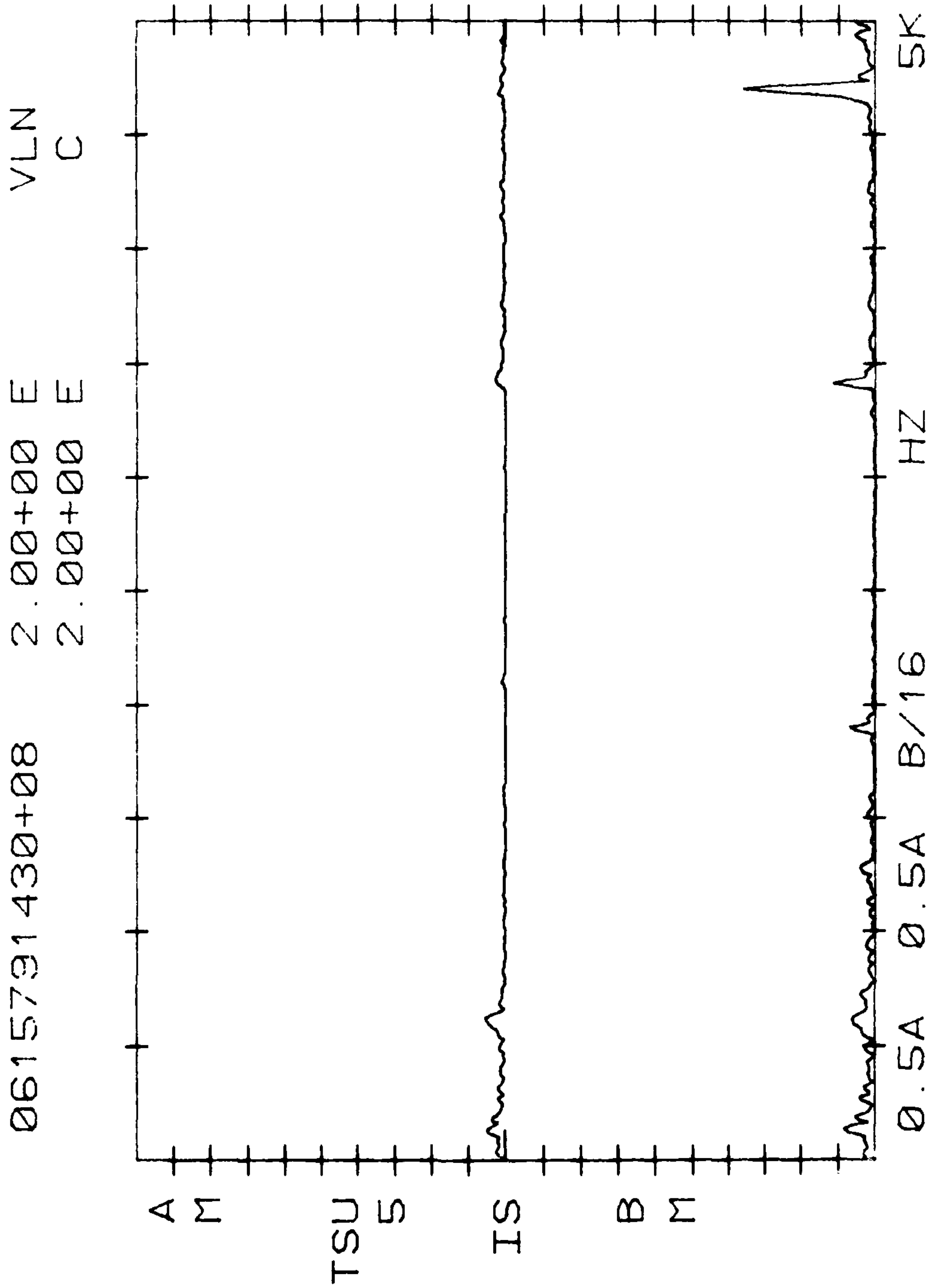
NATIONAL BUREAU OF STANDARDS-1963-A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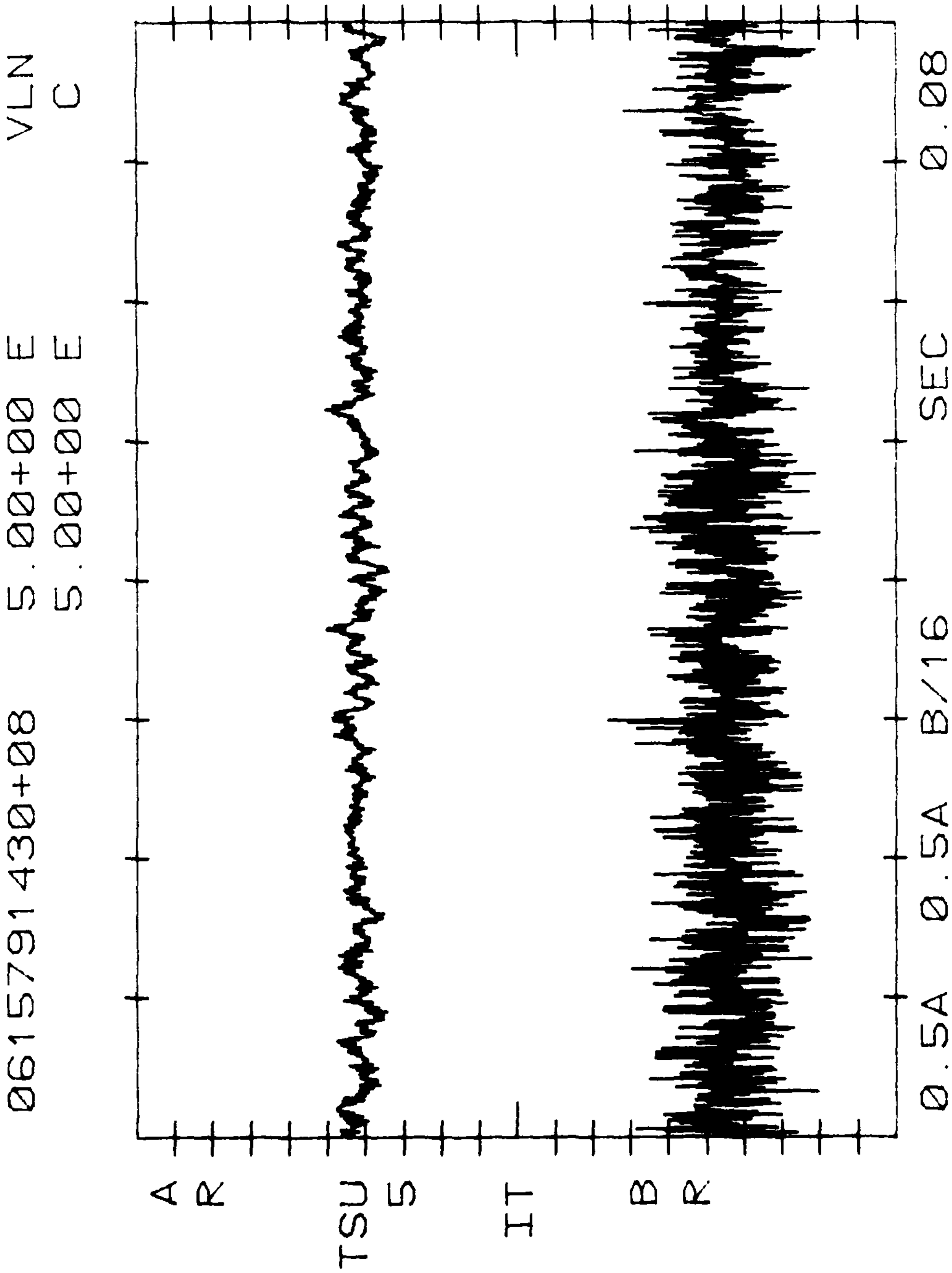
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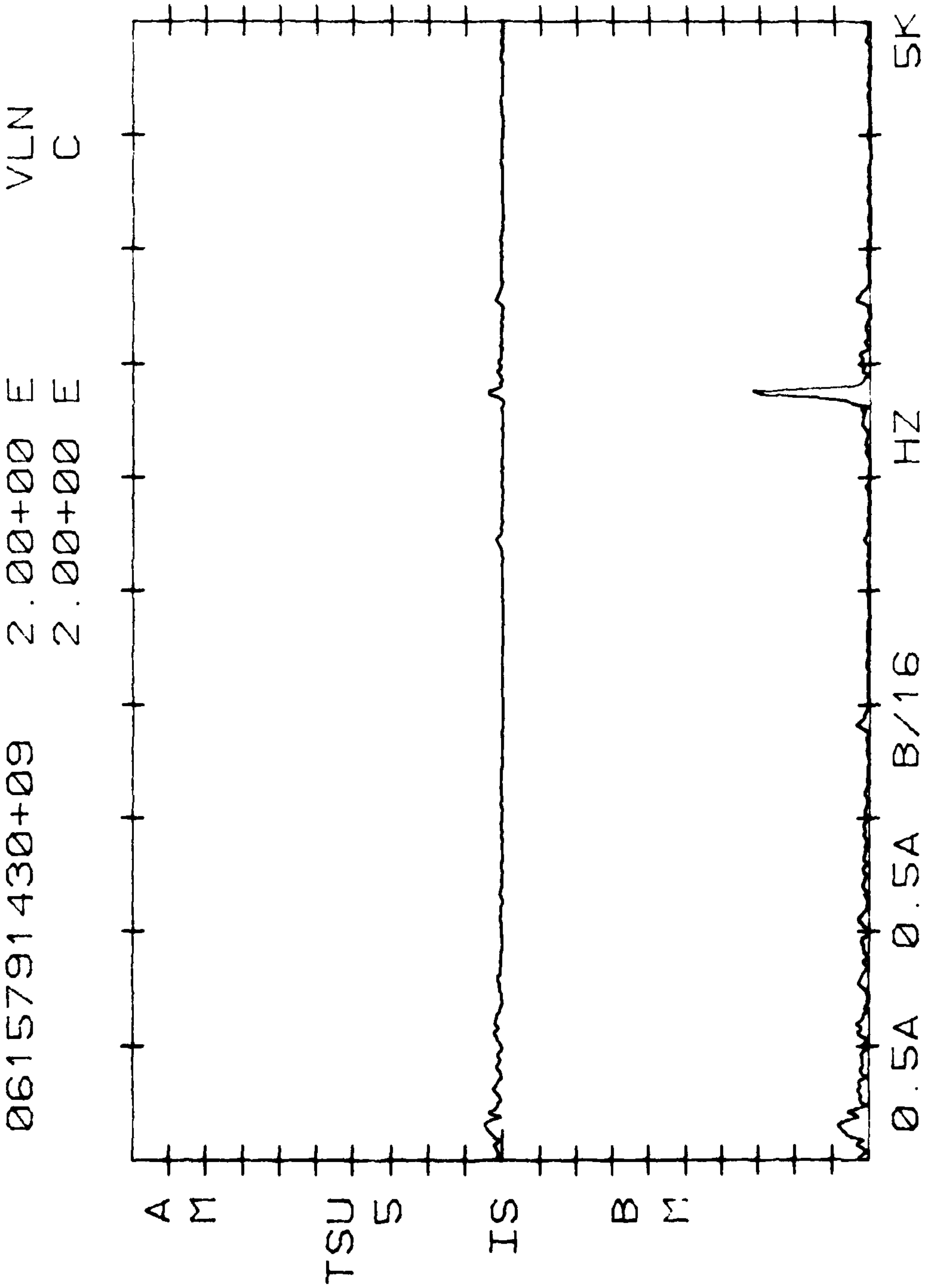
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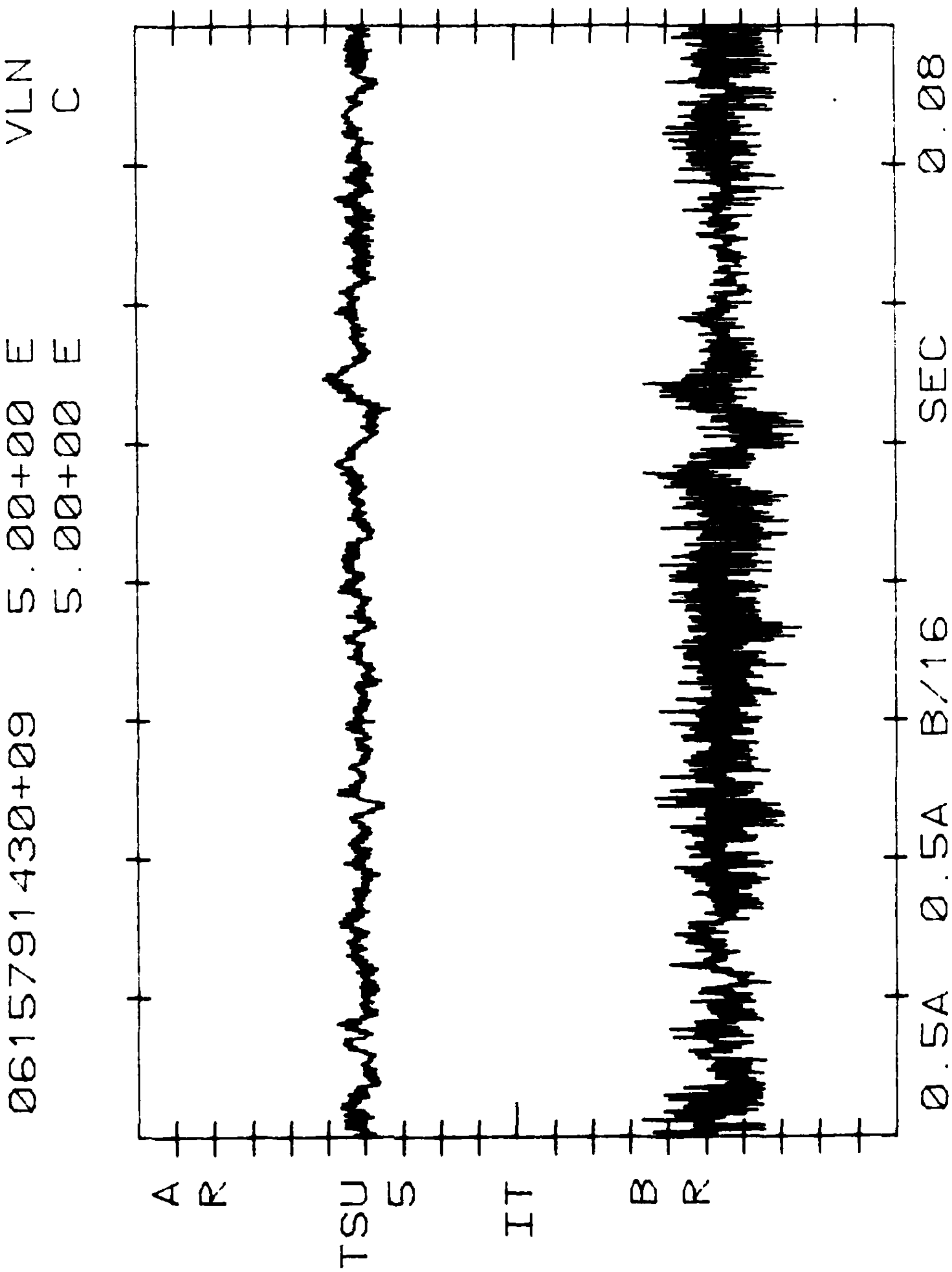
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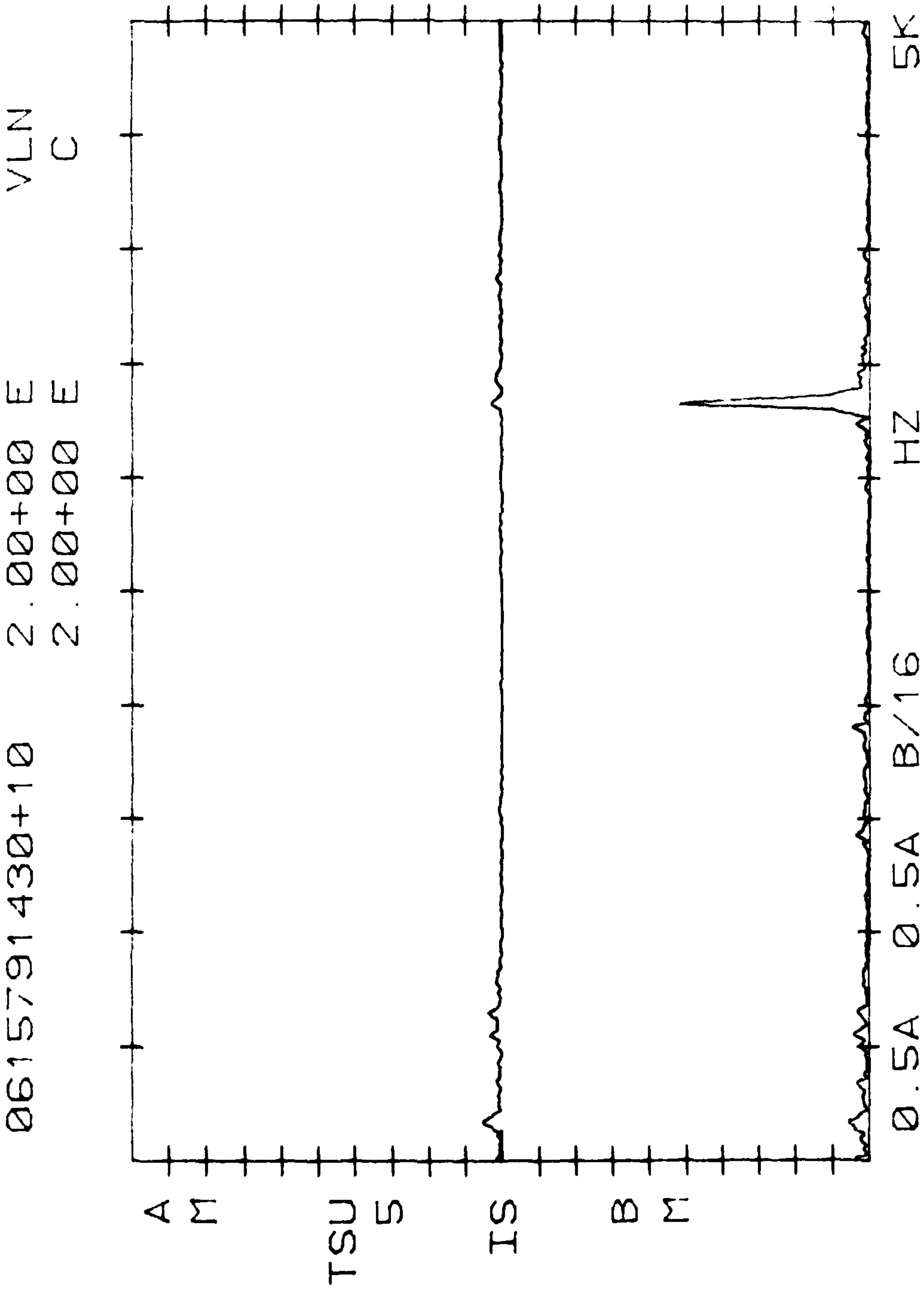
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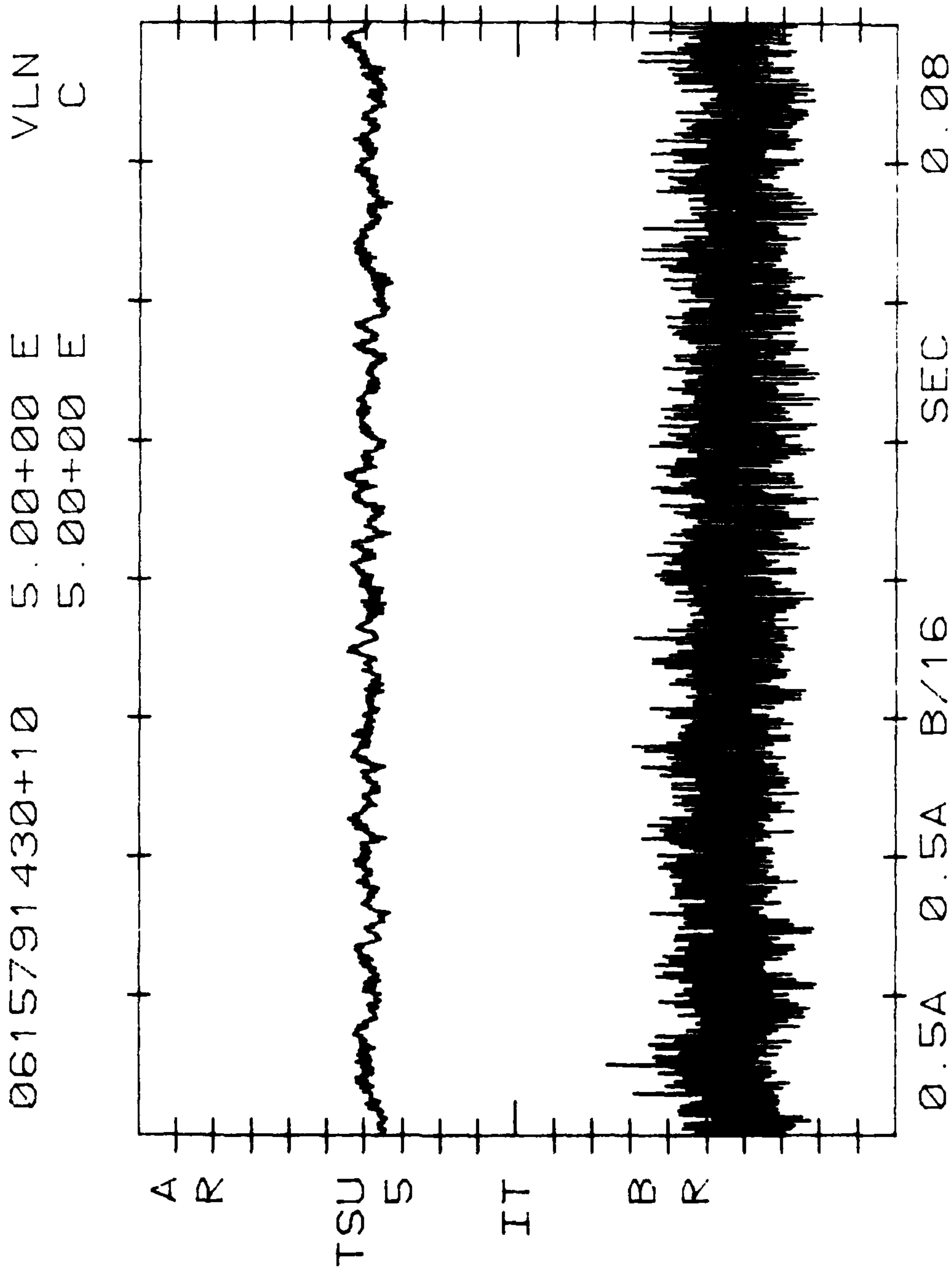
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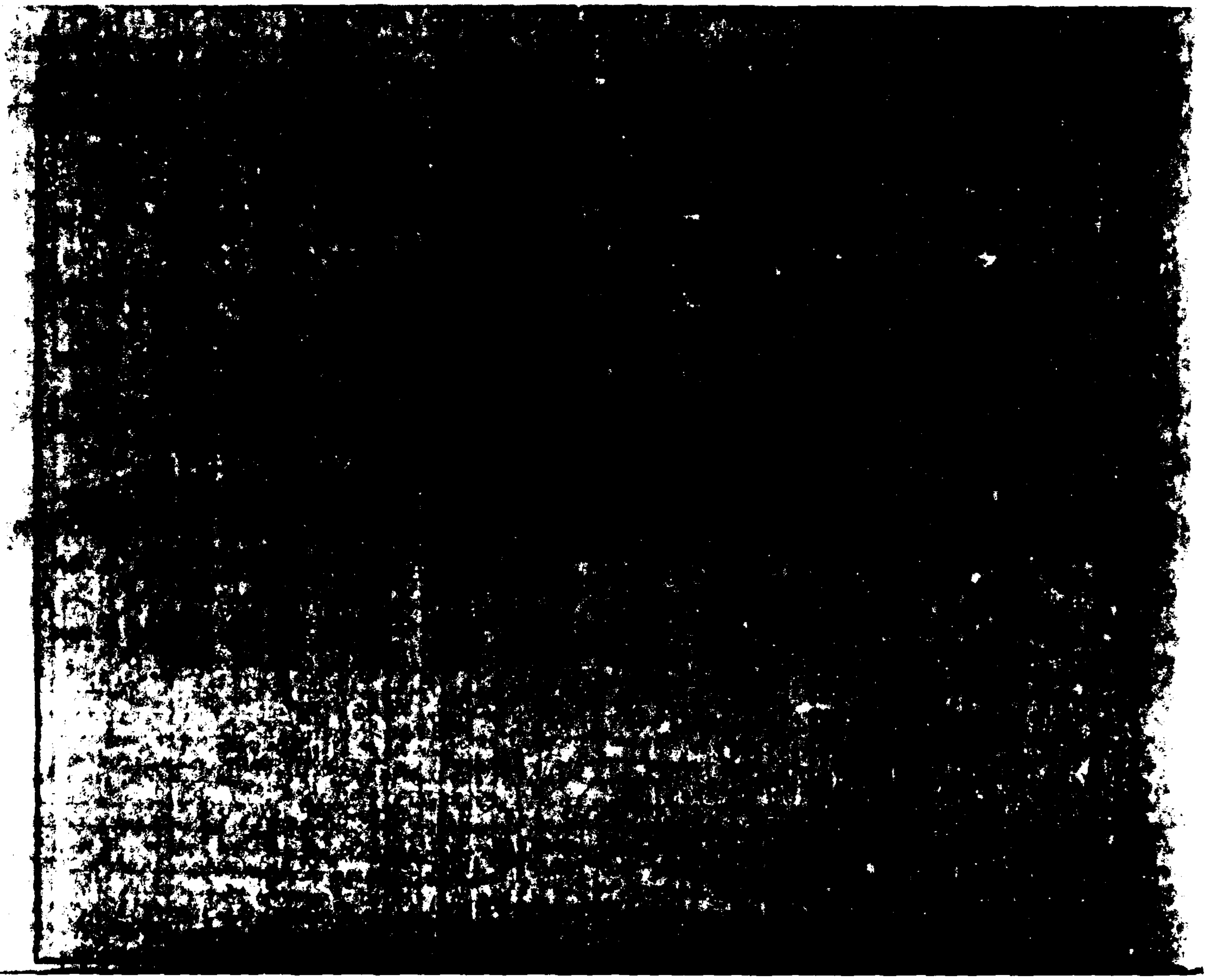

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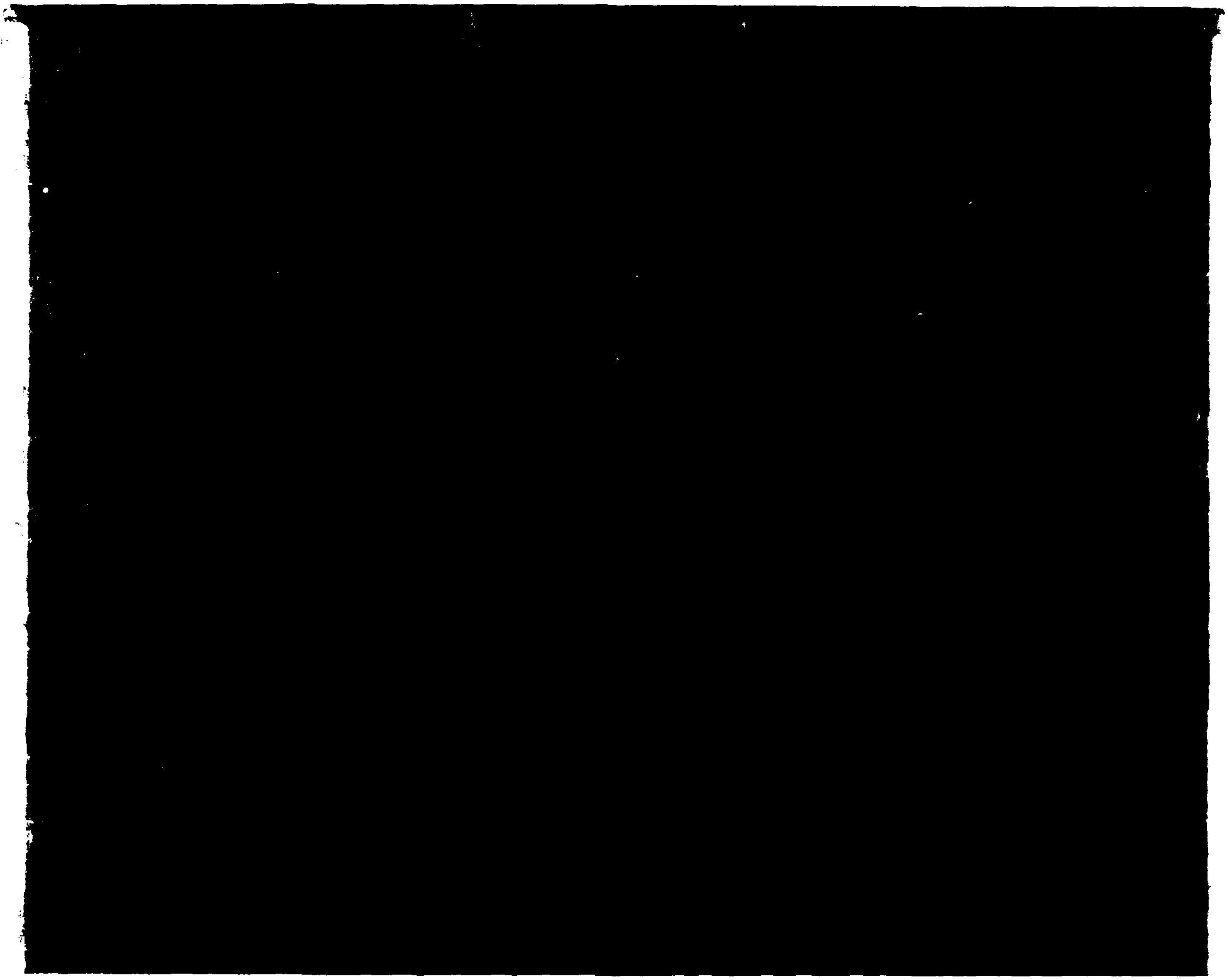

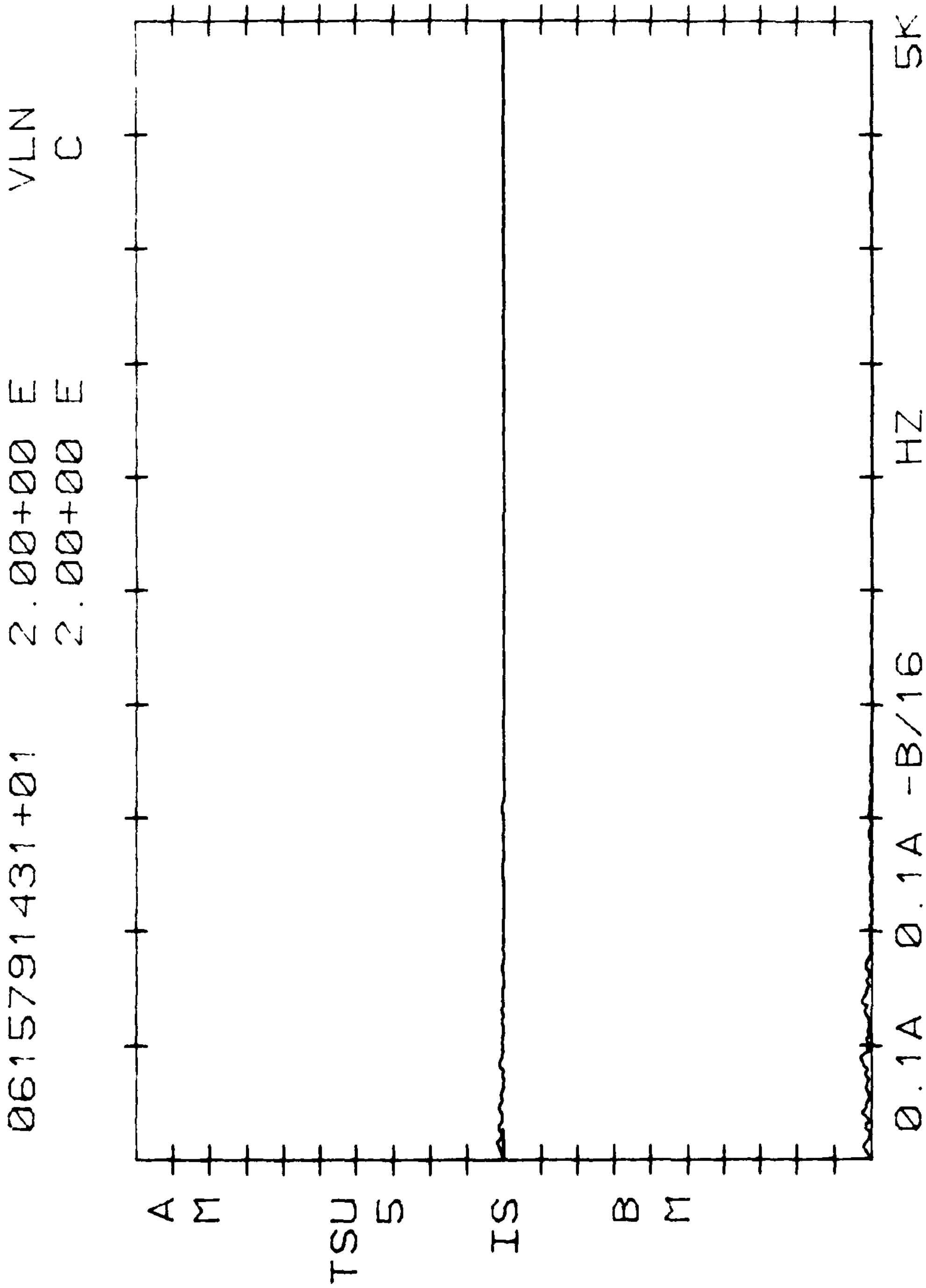
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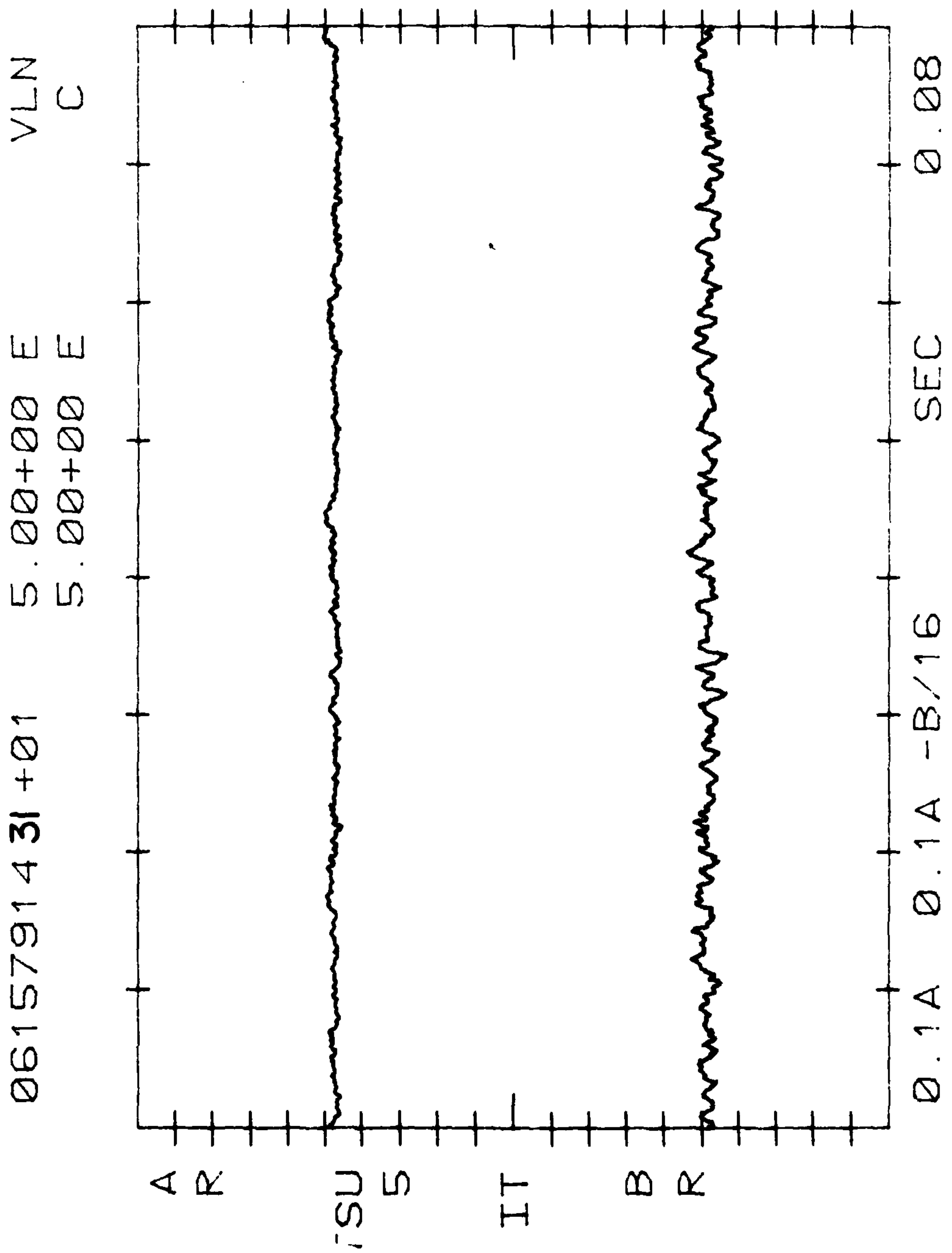
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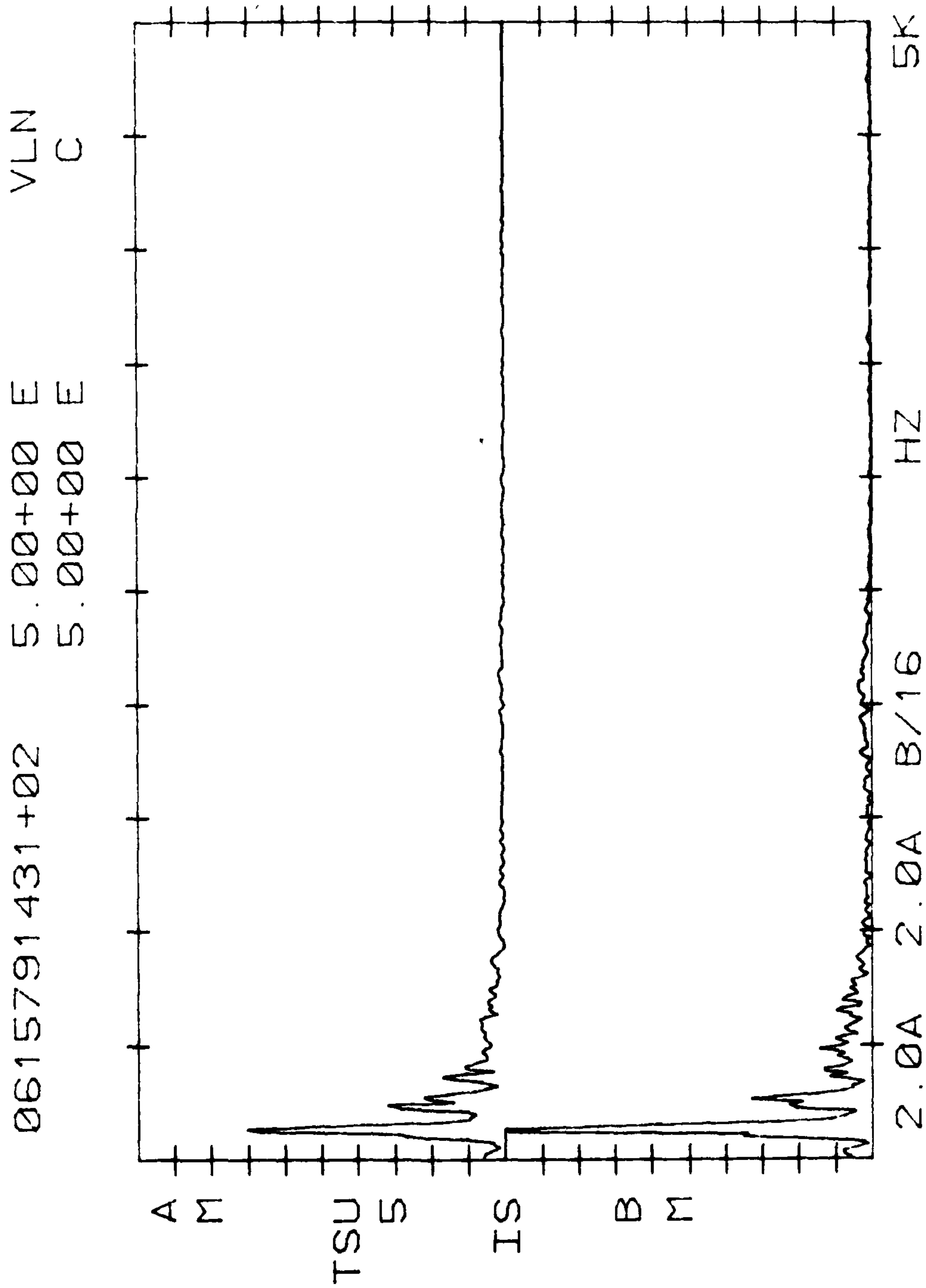
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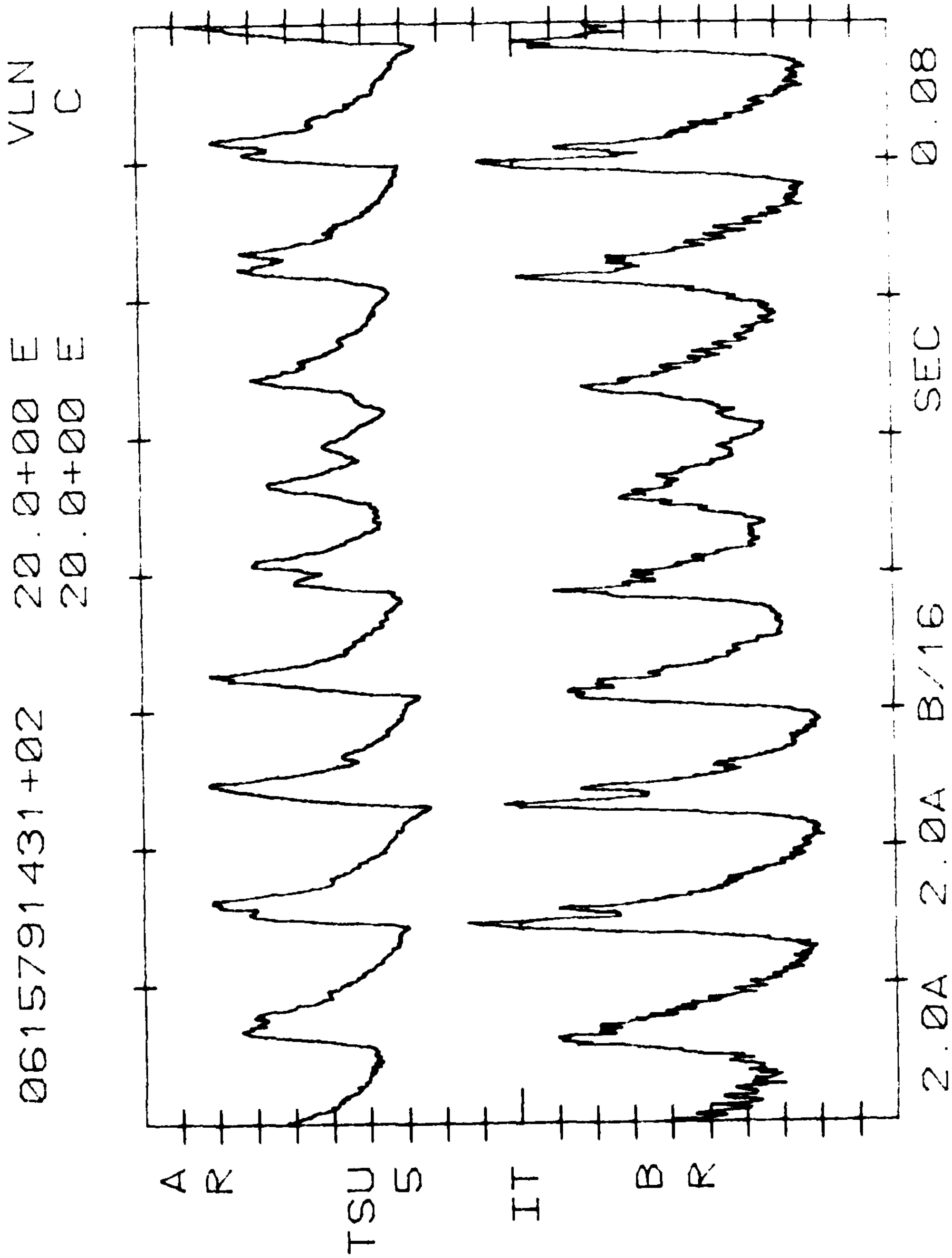
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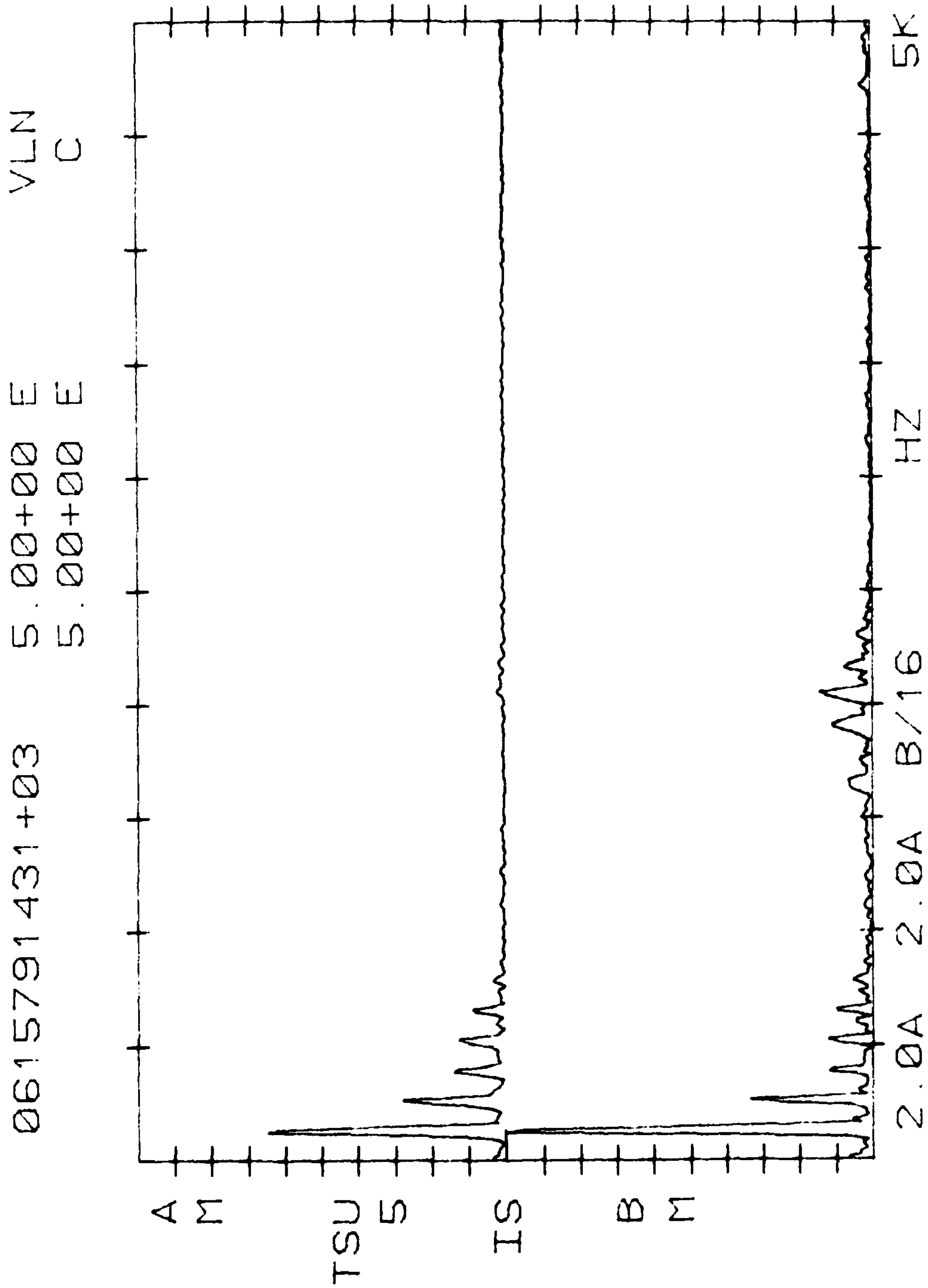
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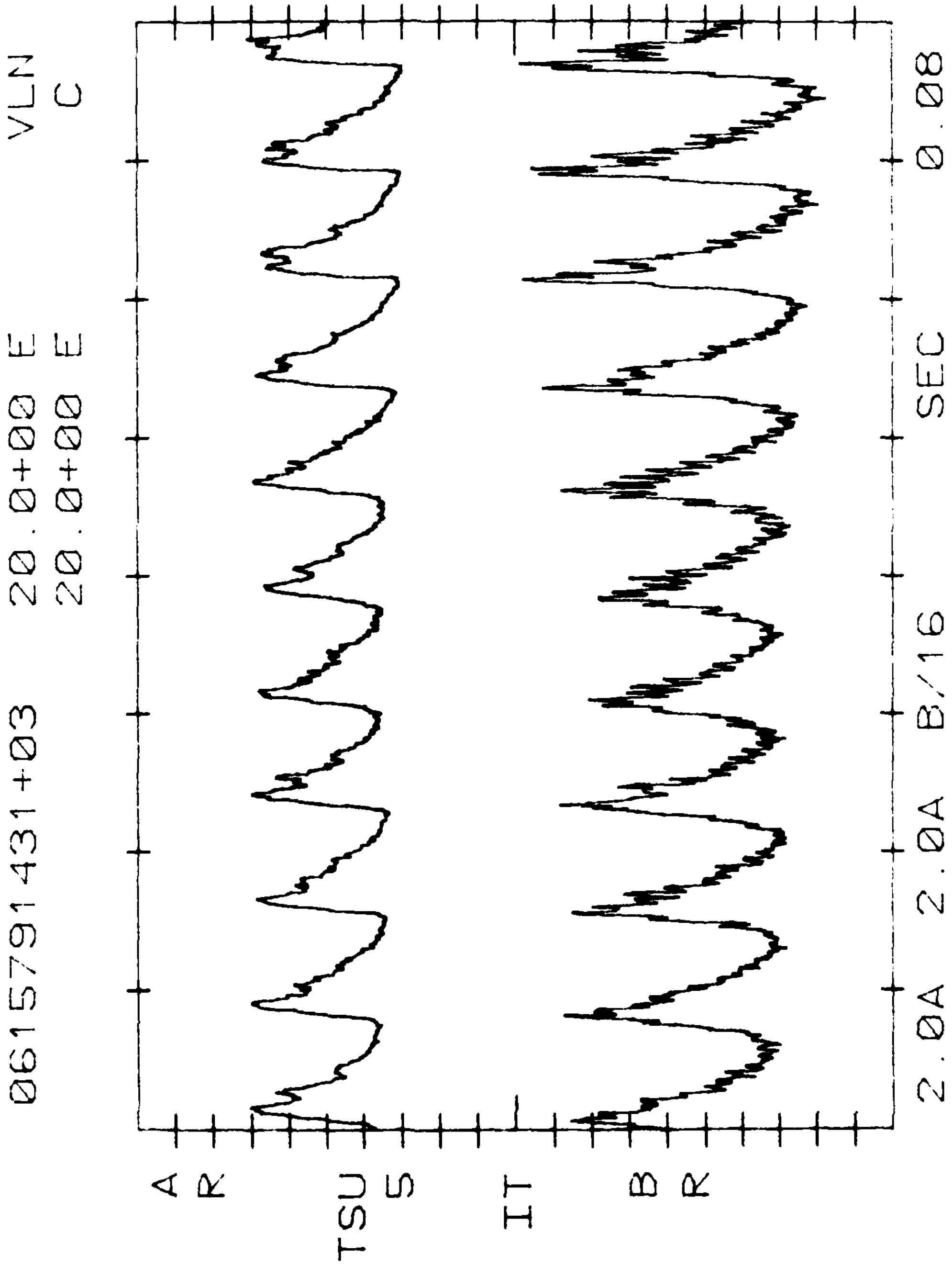
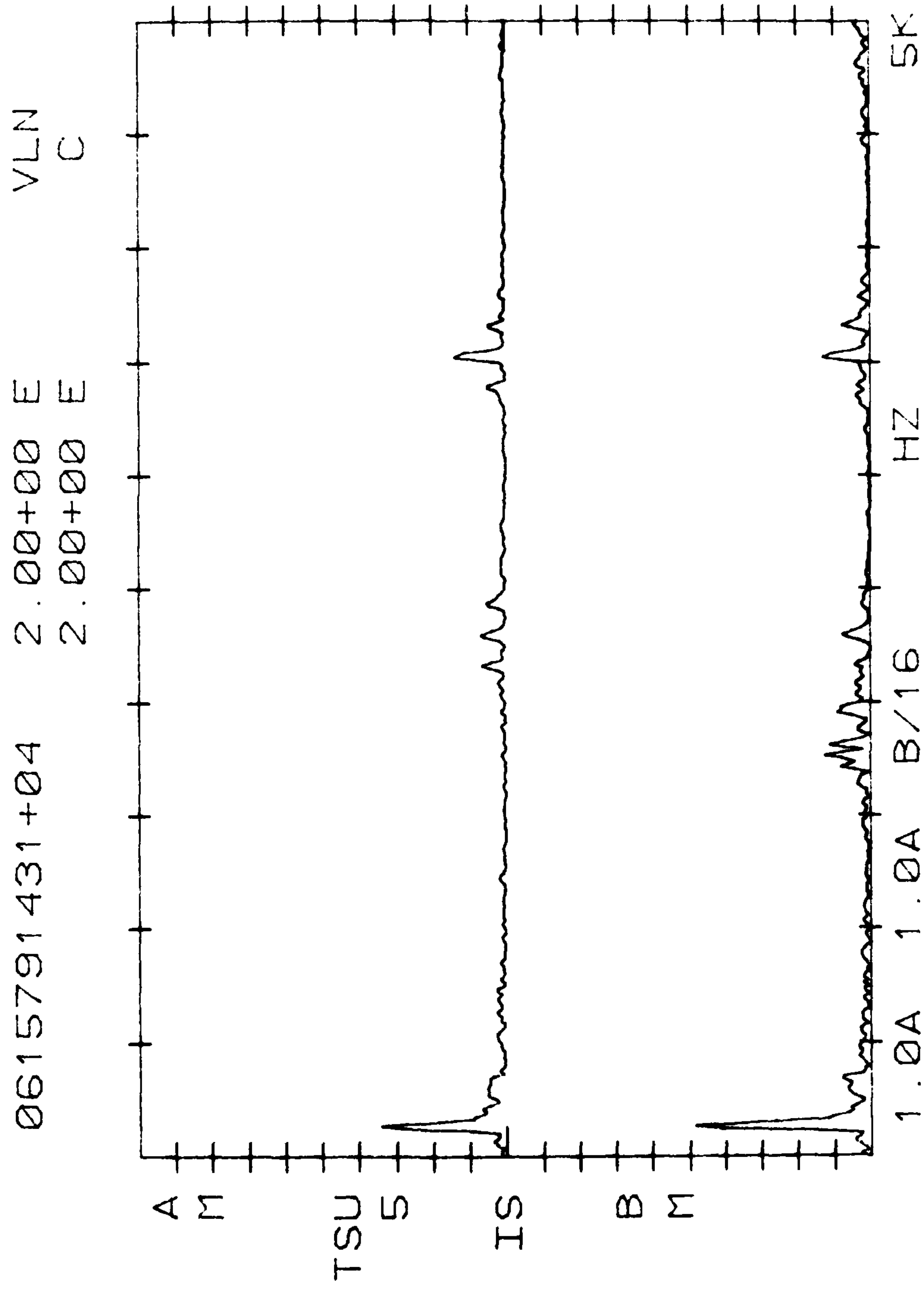
Part I

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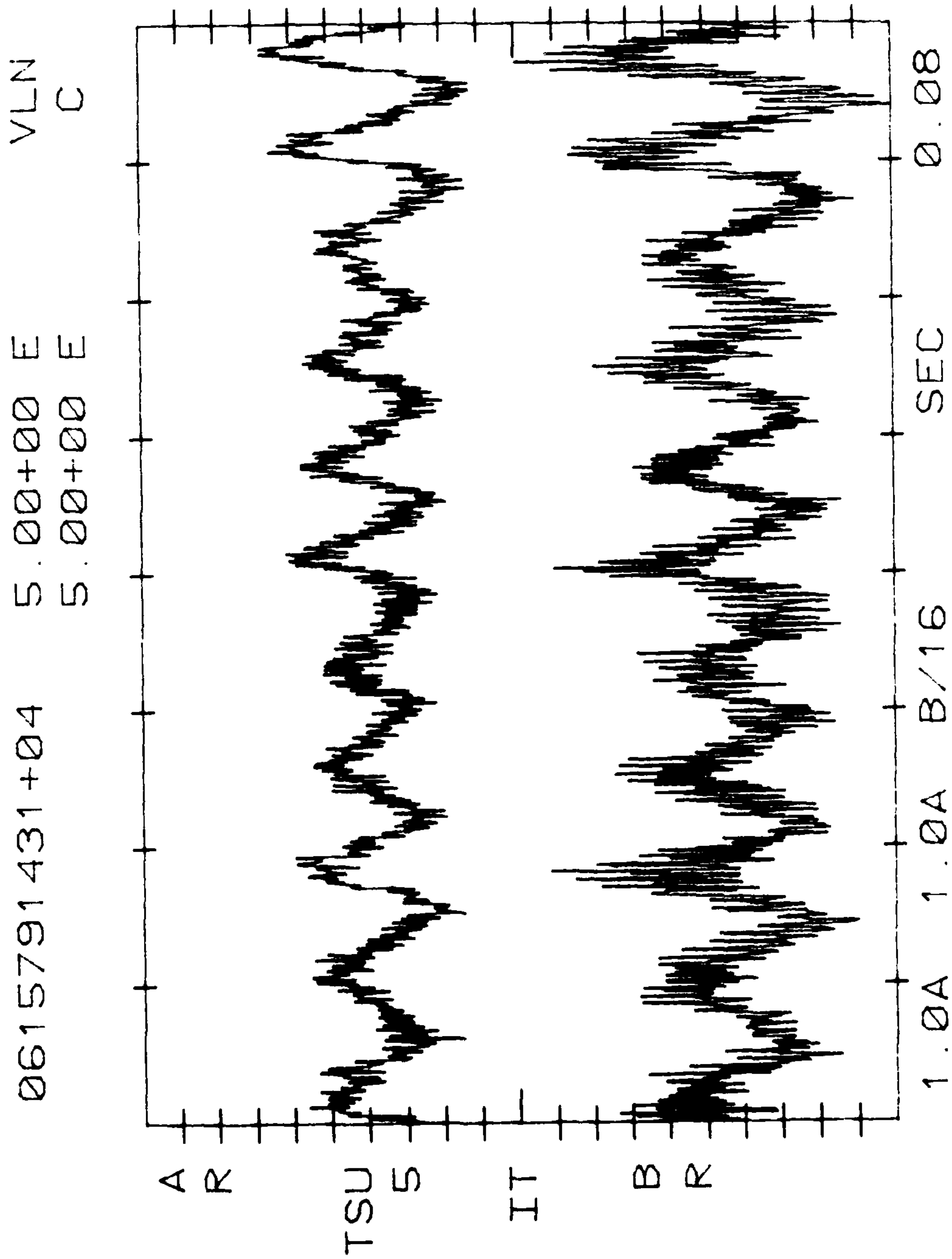
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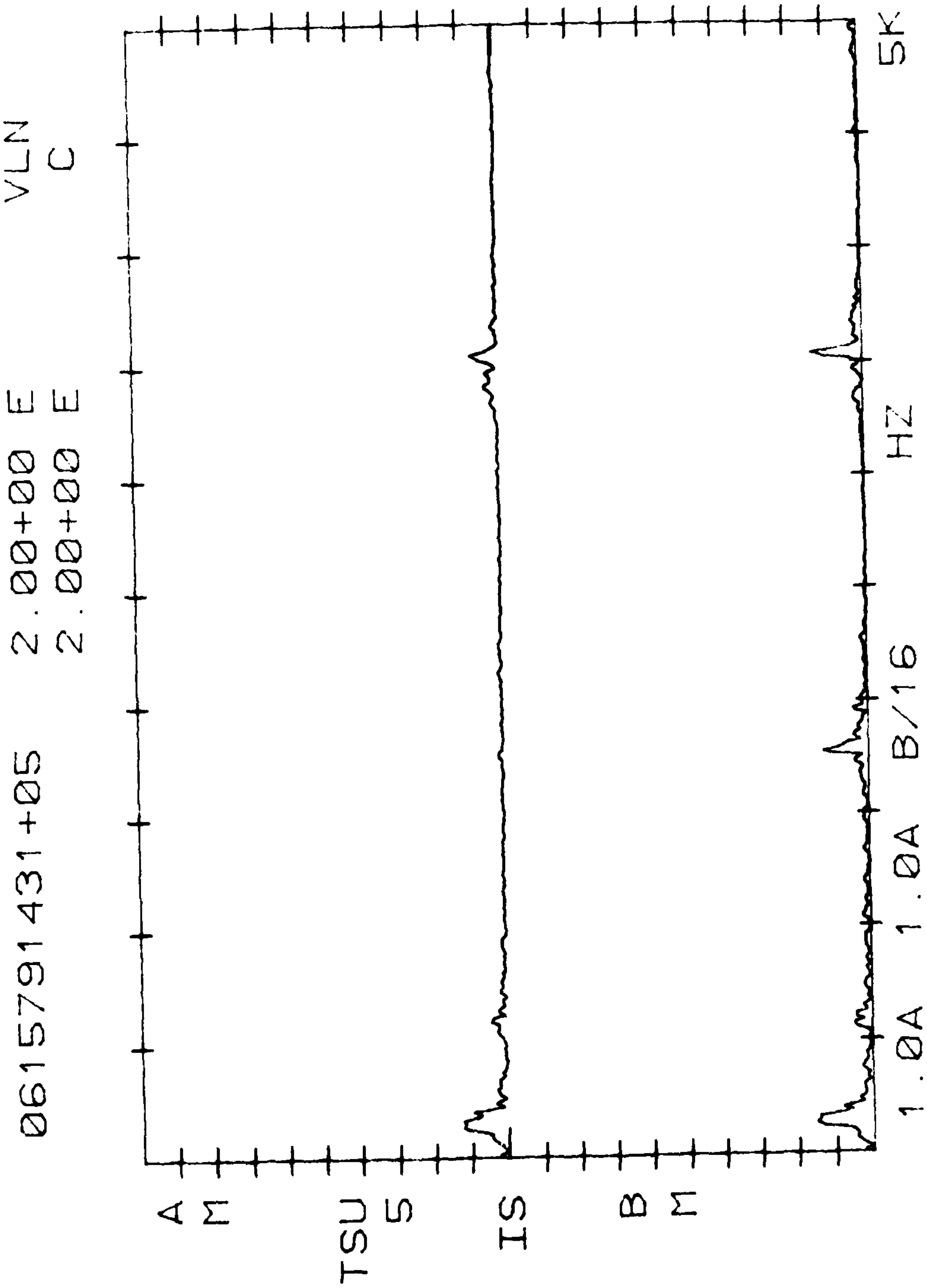
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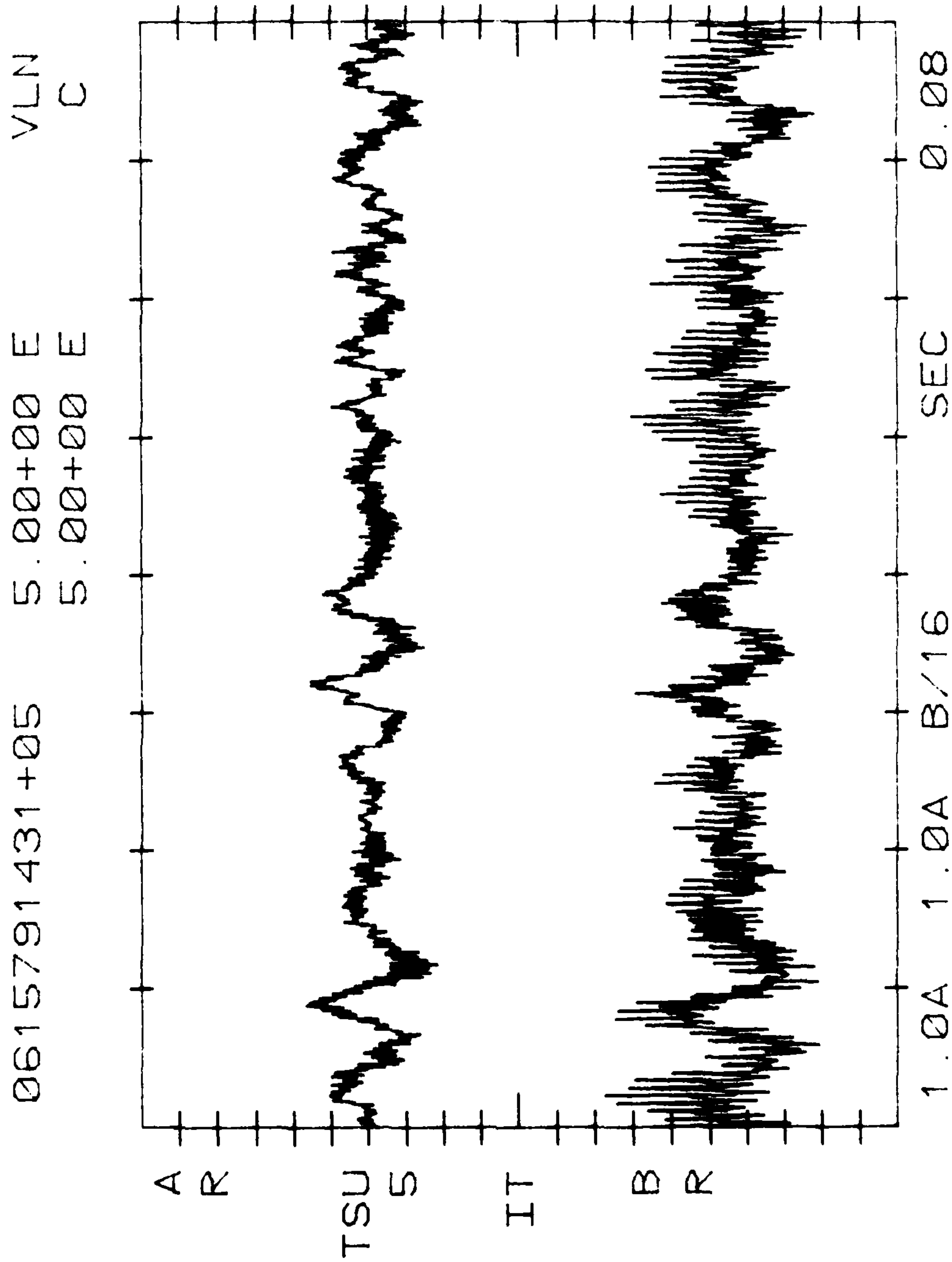
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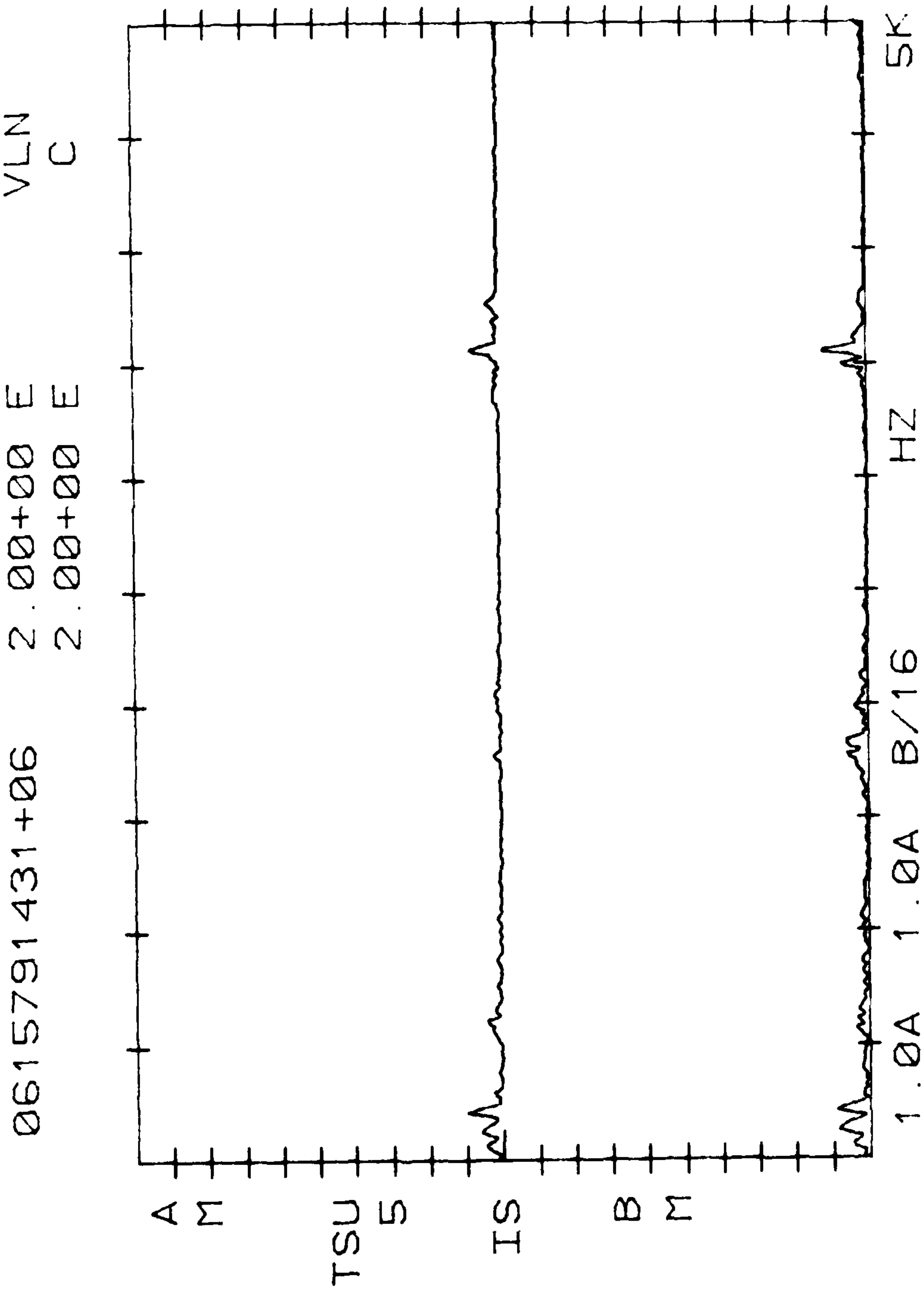
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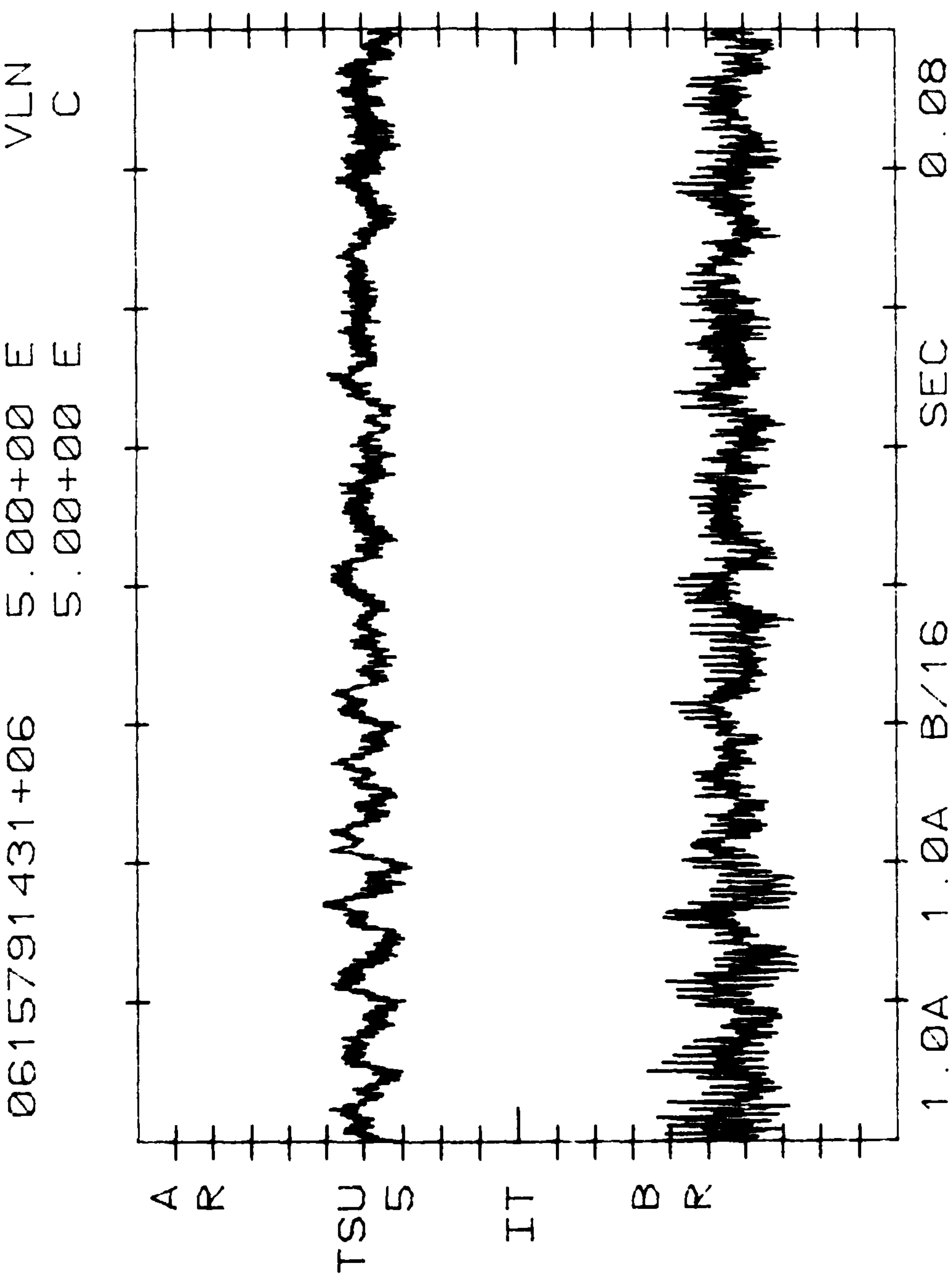
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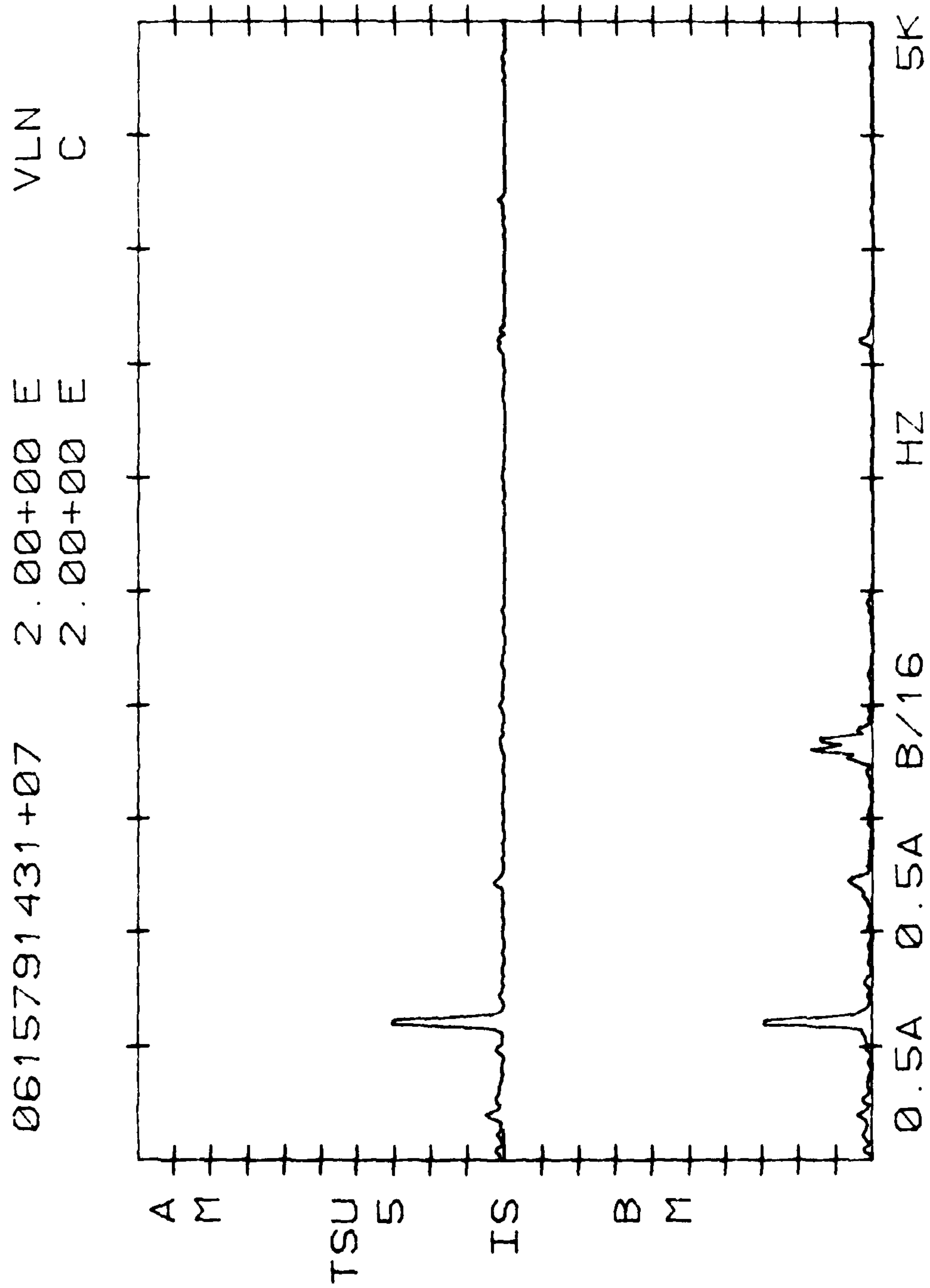
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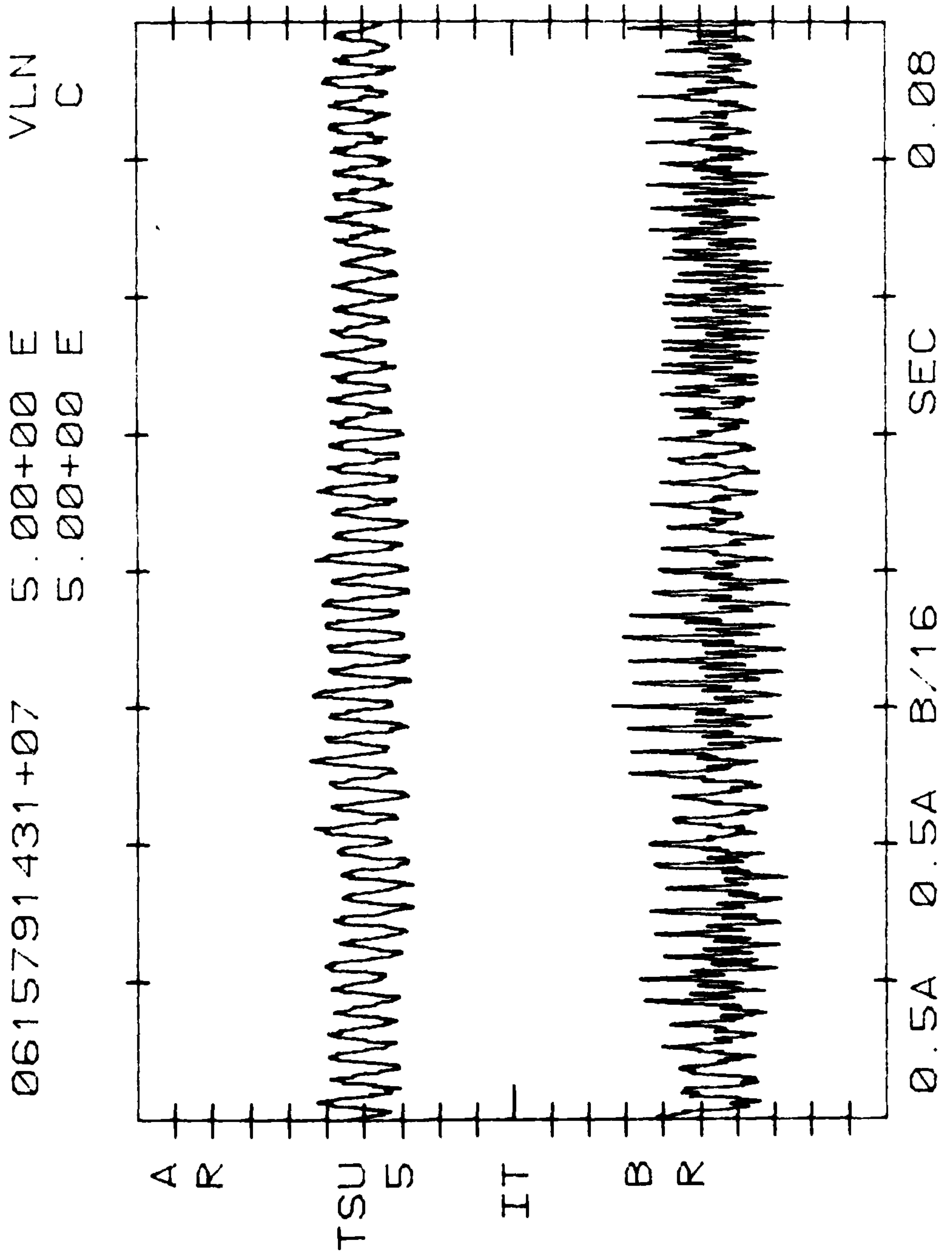
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C
0.5A 0.5A B/16 SEC 0.08
AR
TSU5
IT
BR

REDUCED DATA LISTING

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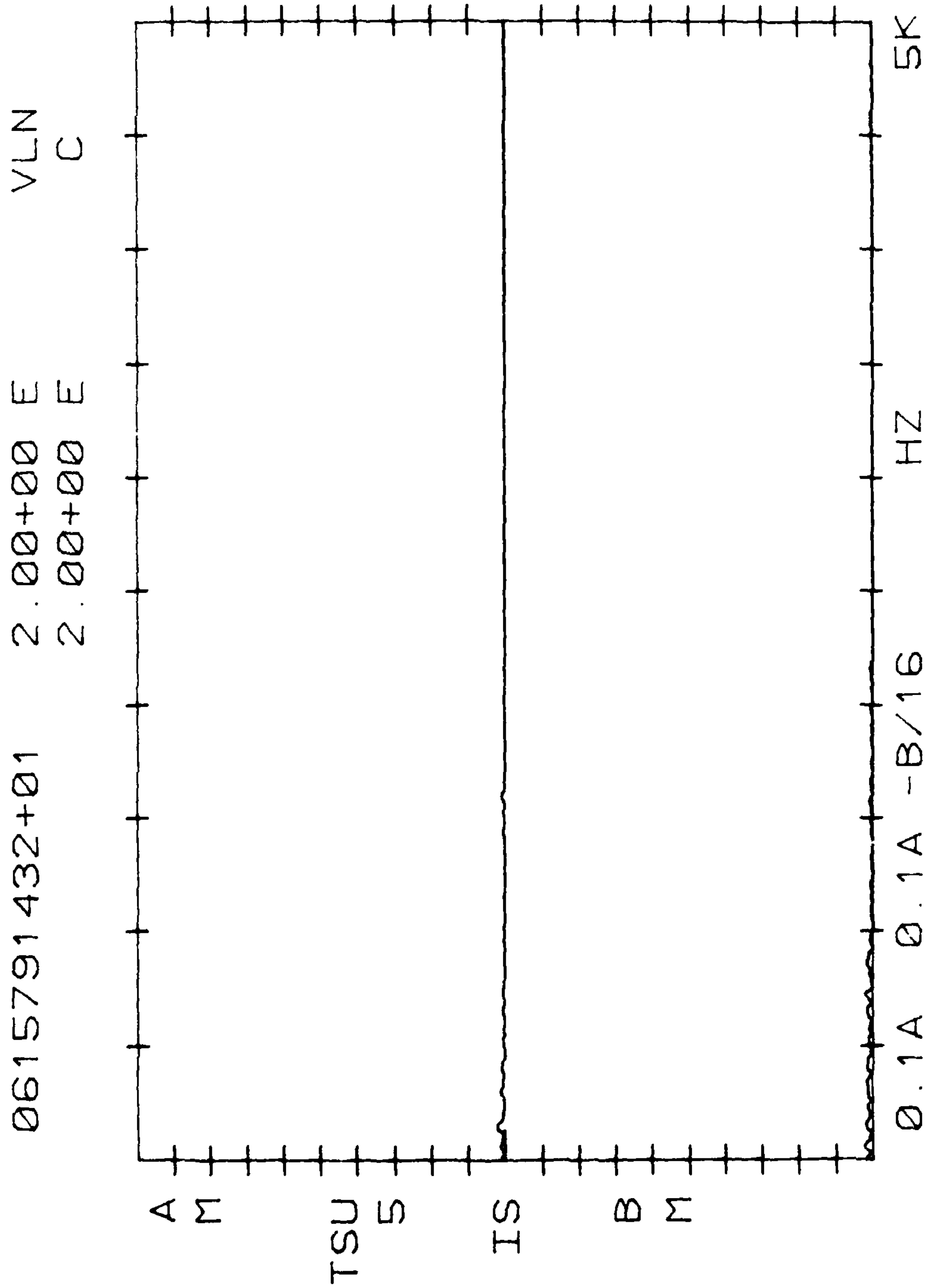
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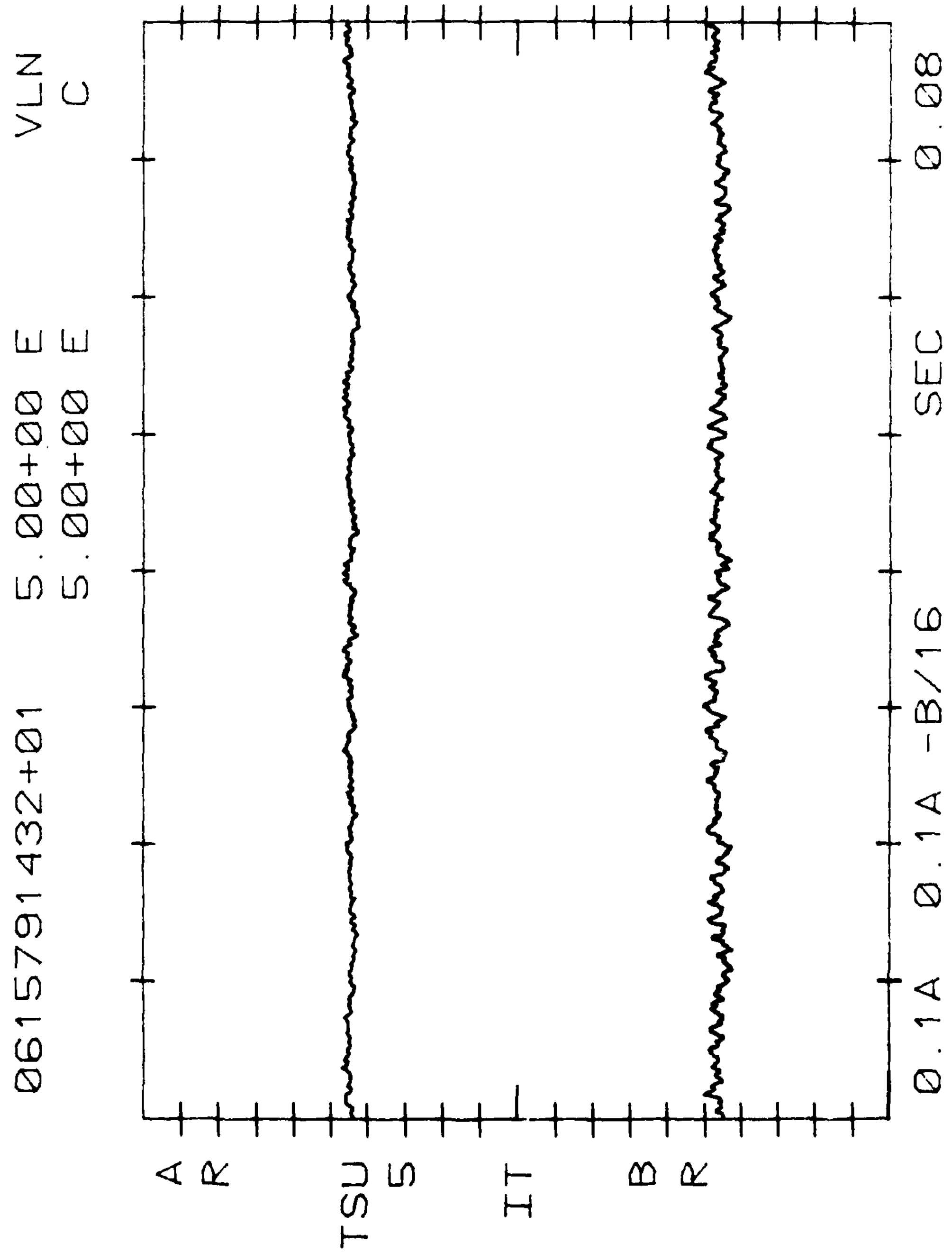
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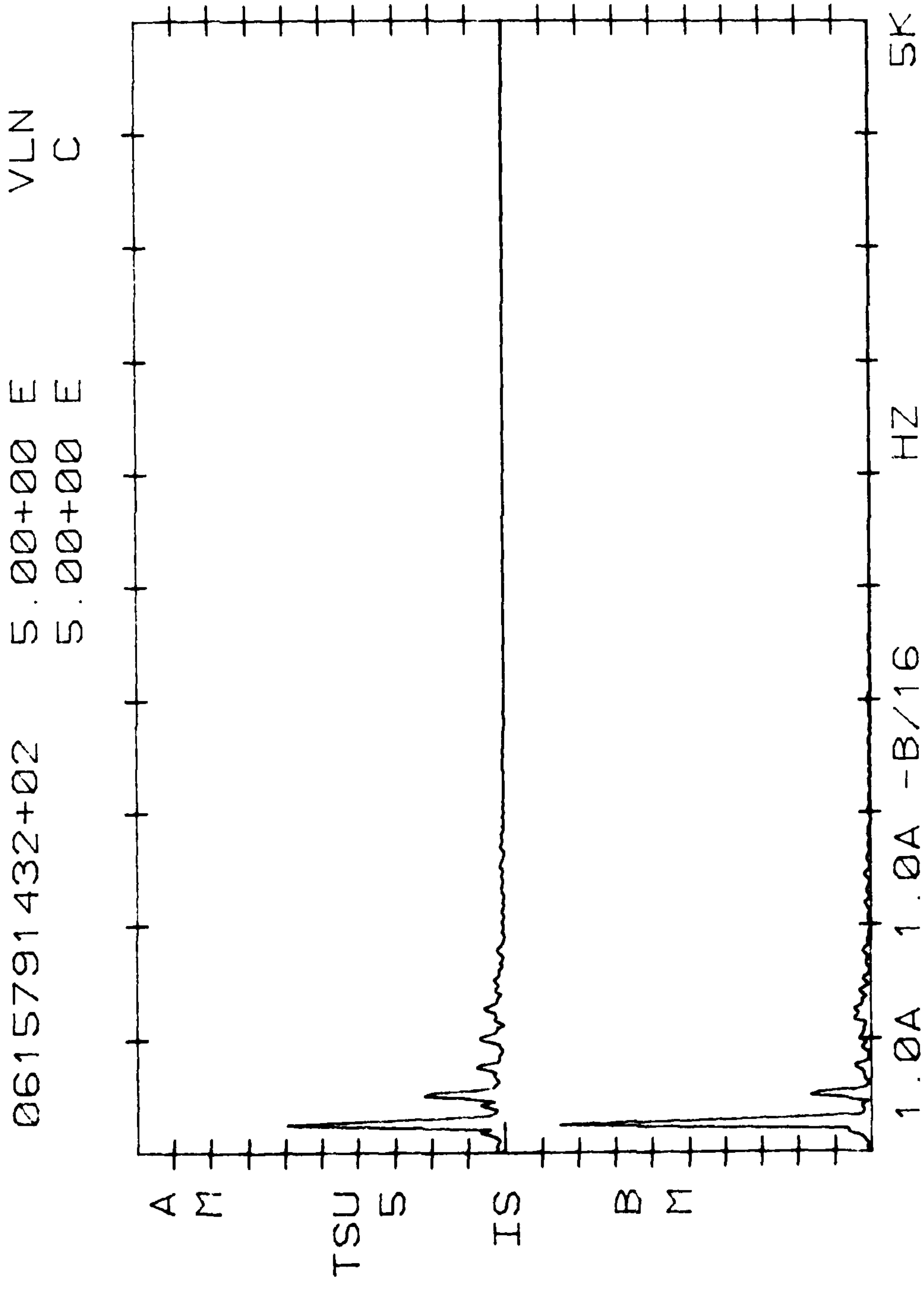
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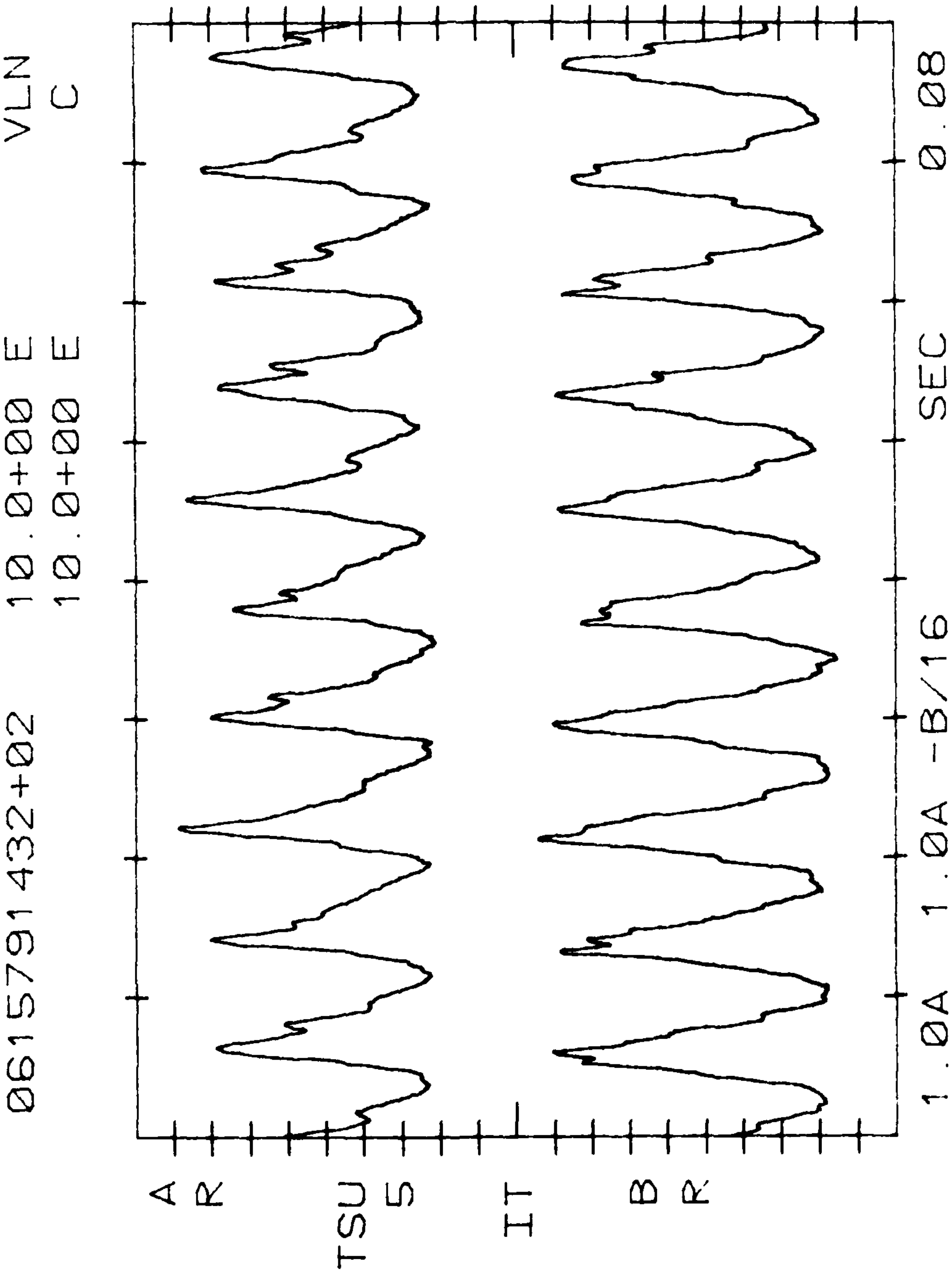
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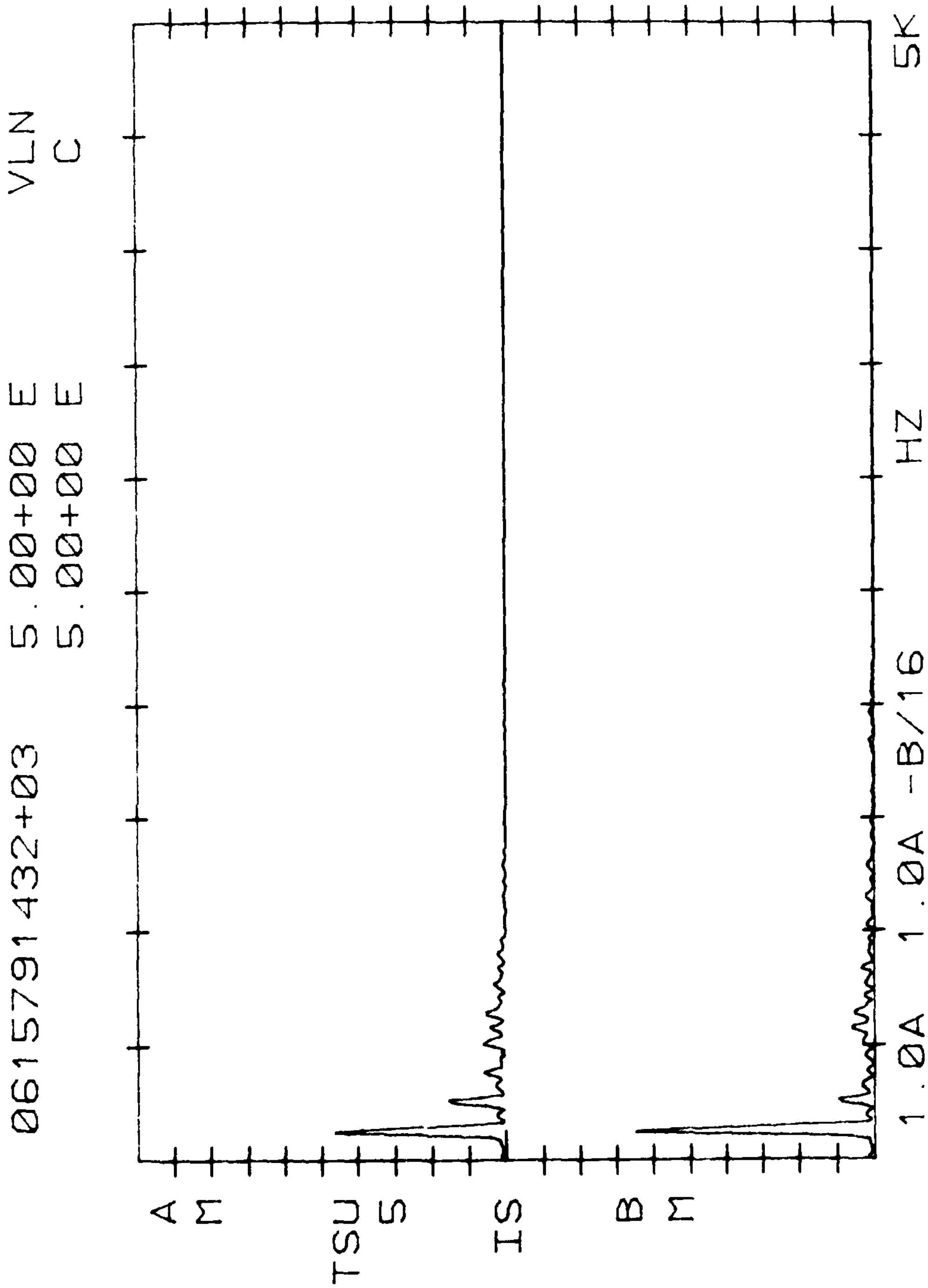
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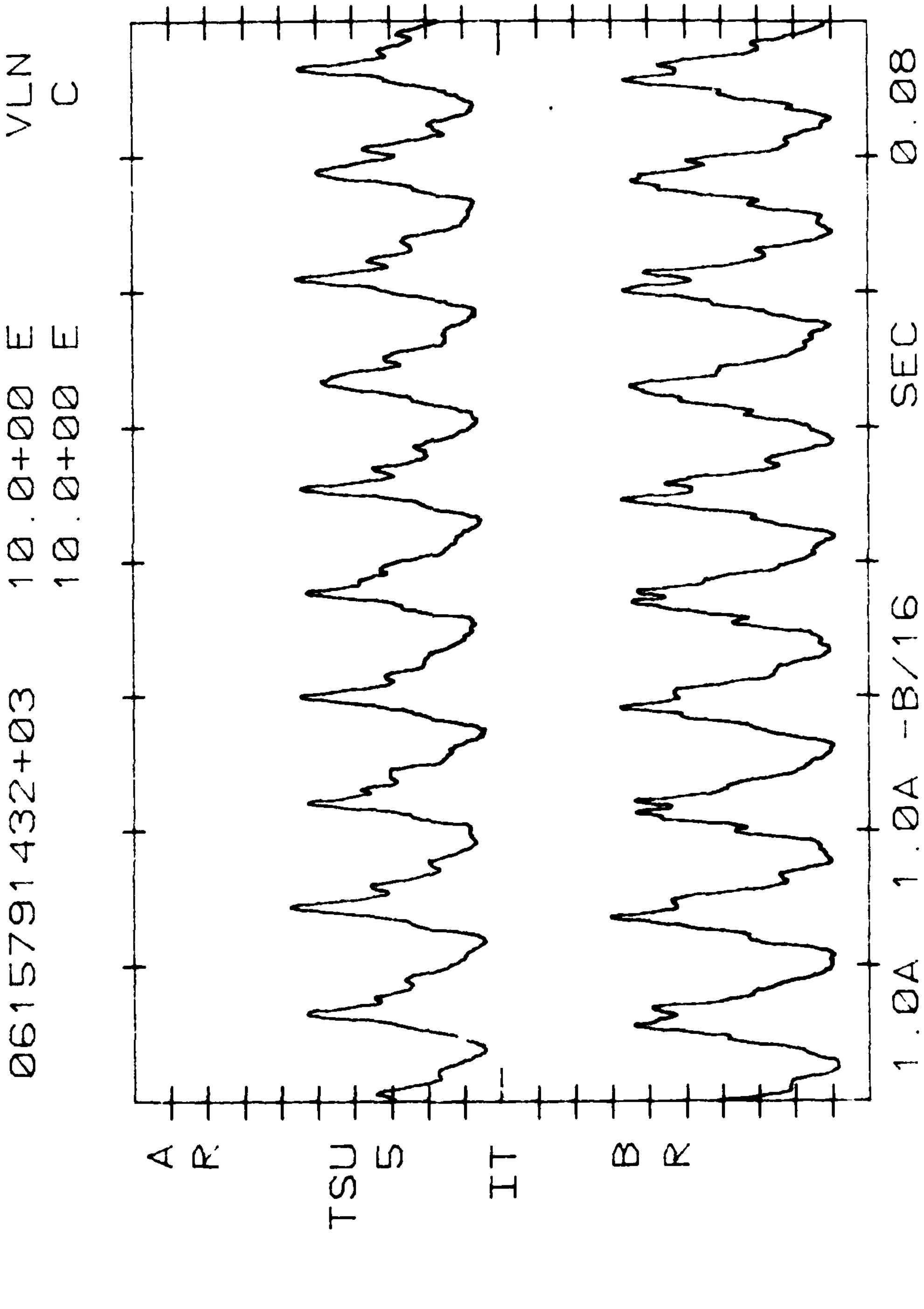
HZ
5K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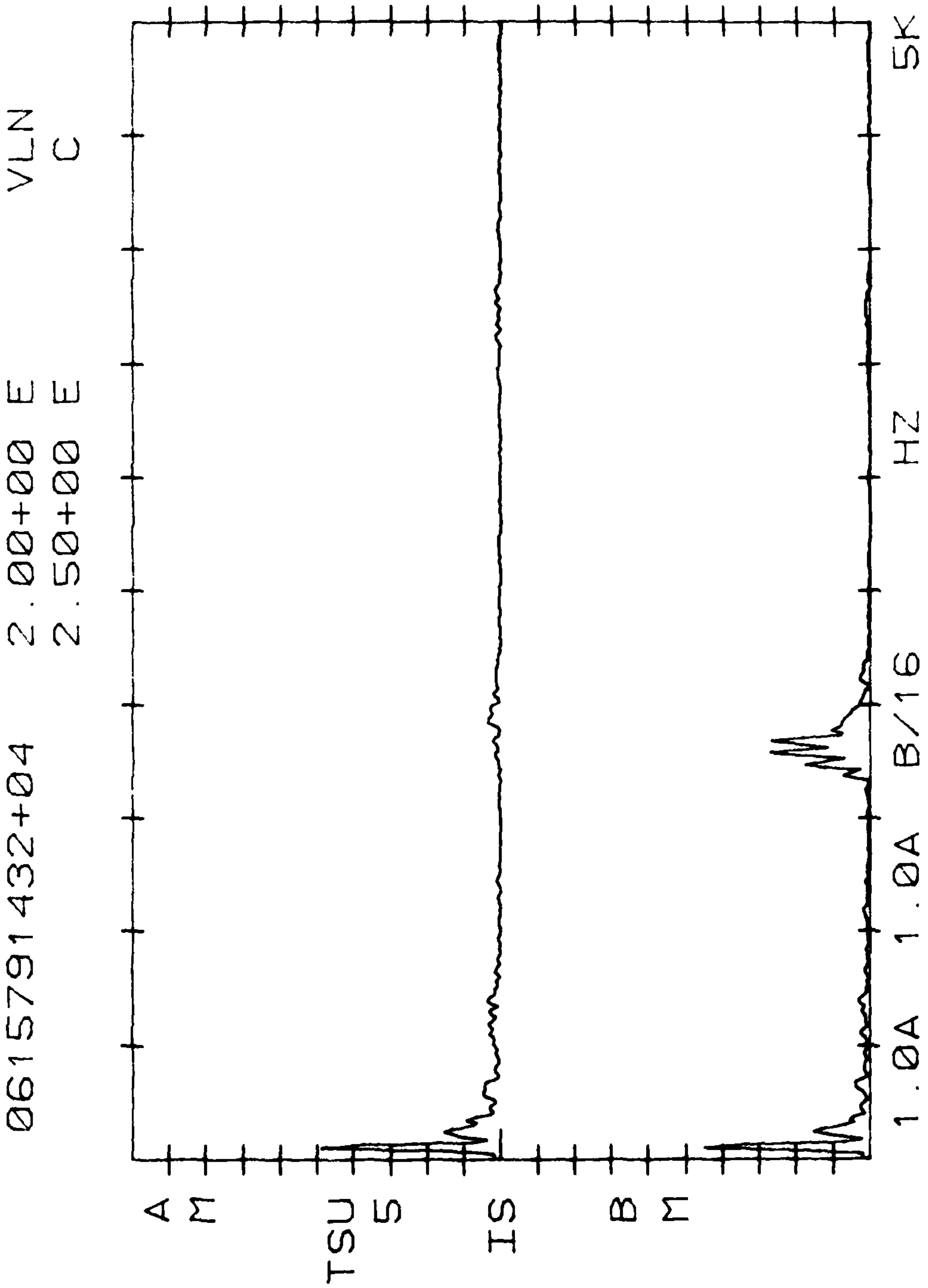
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HZ
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IS
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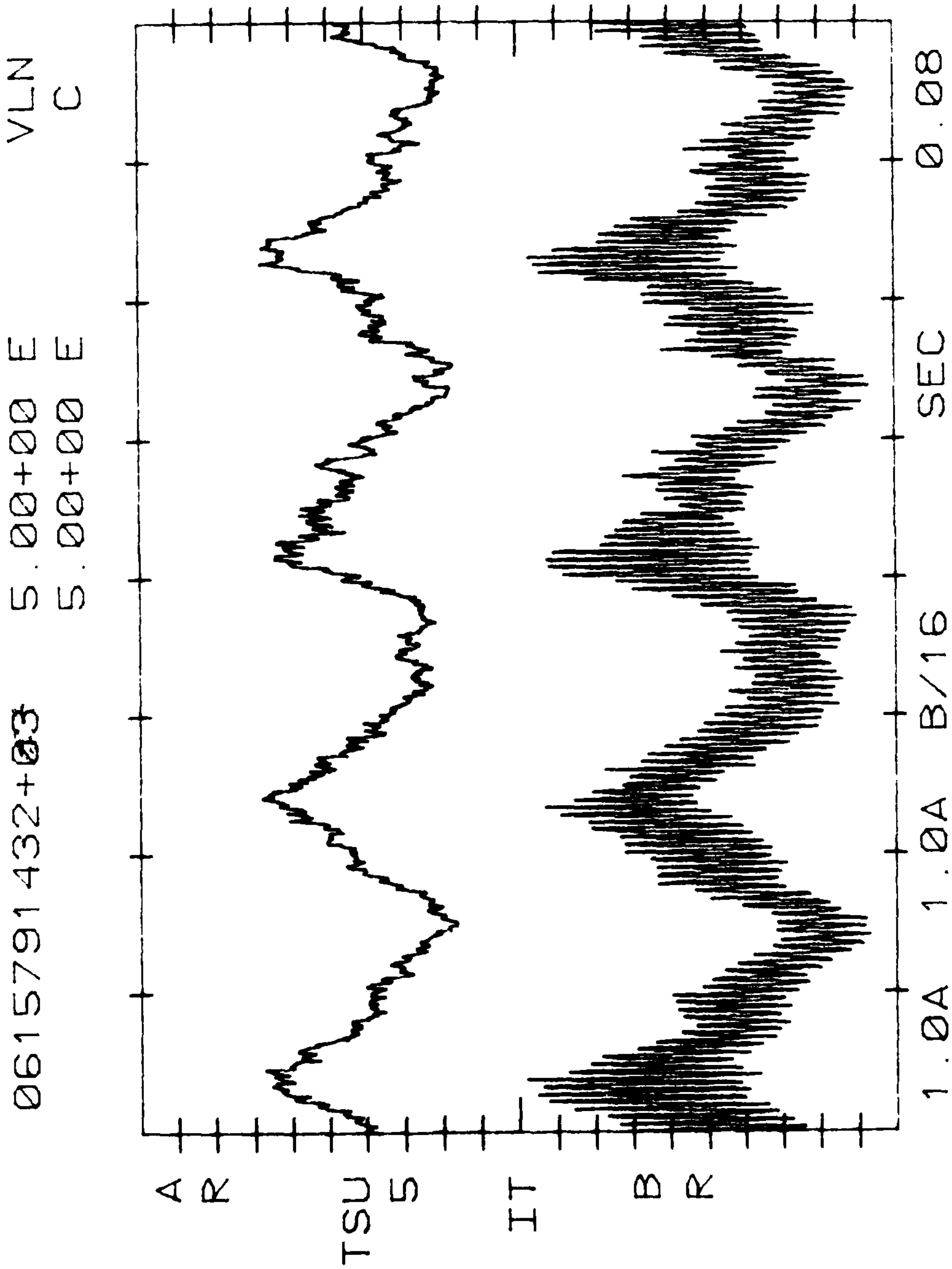
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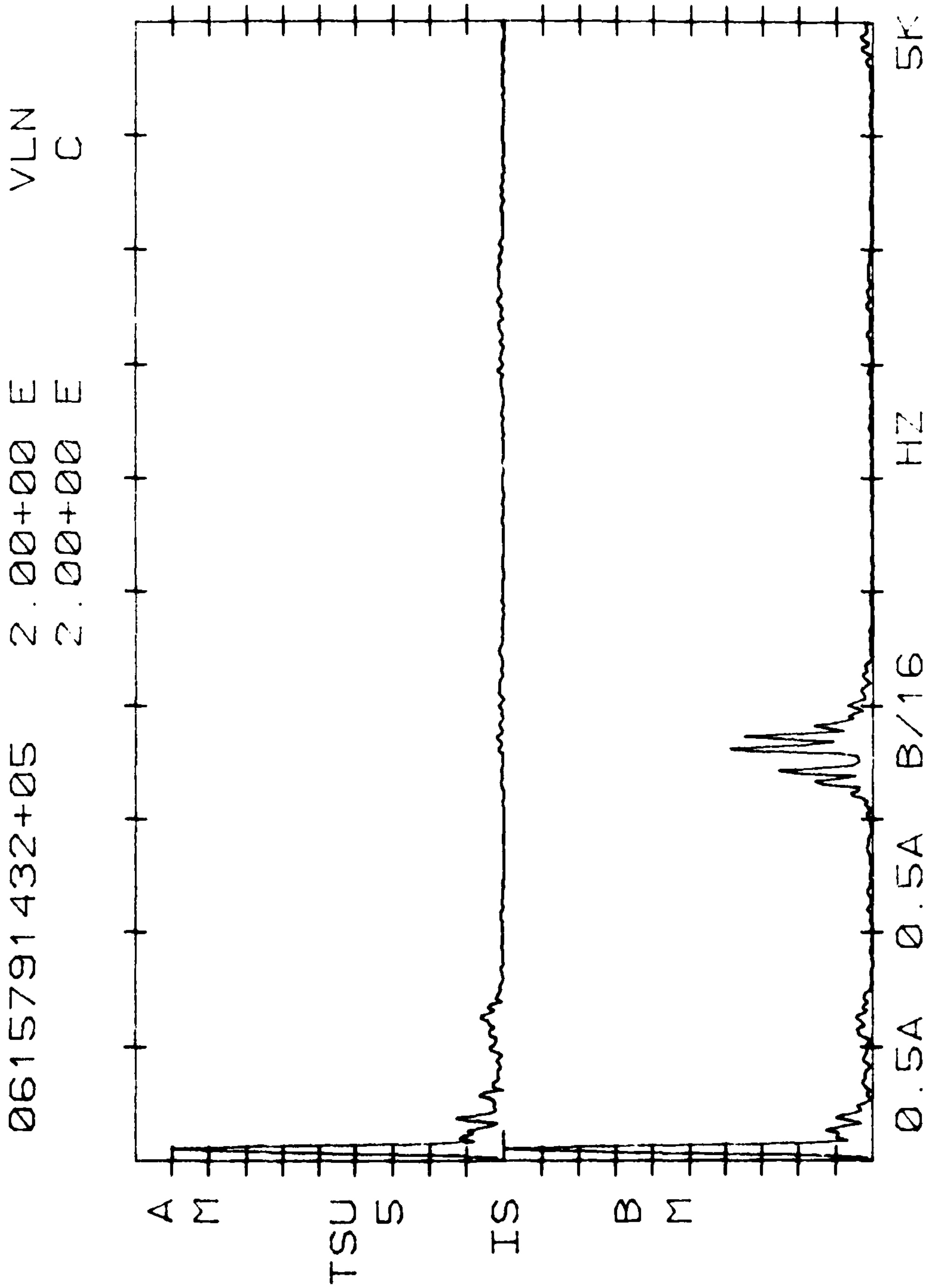
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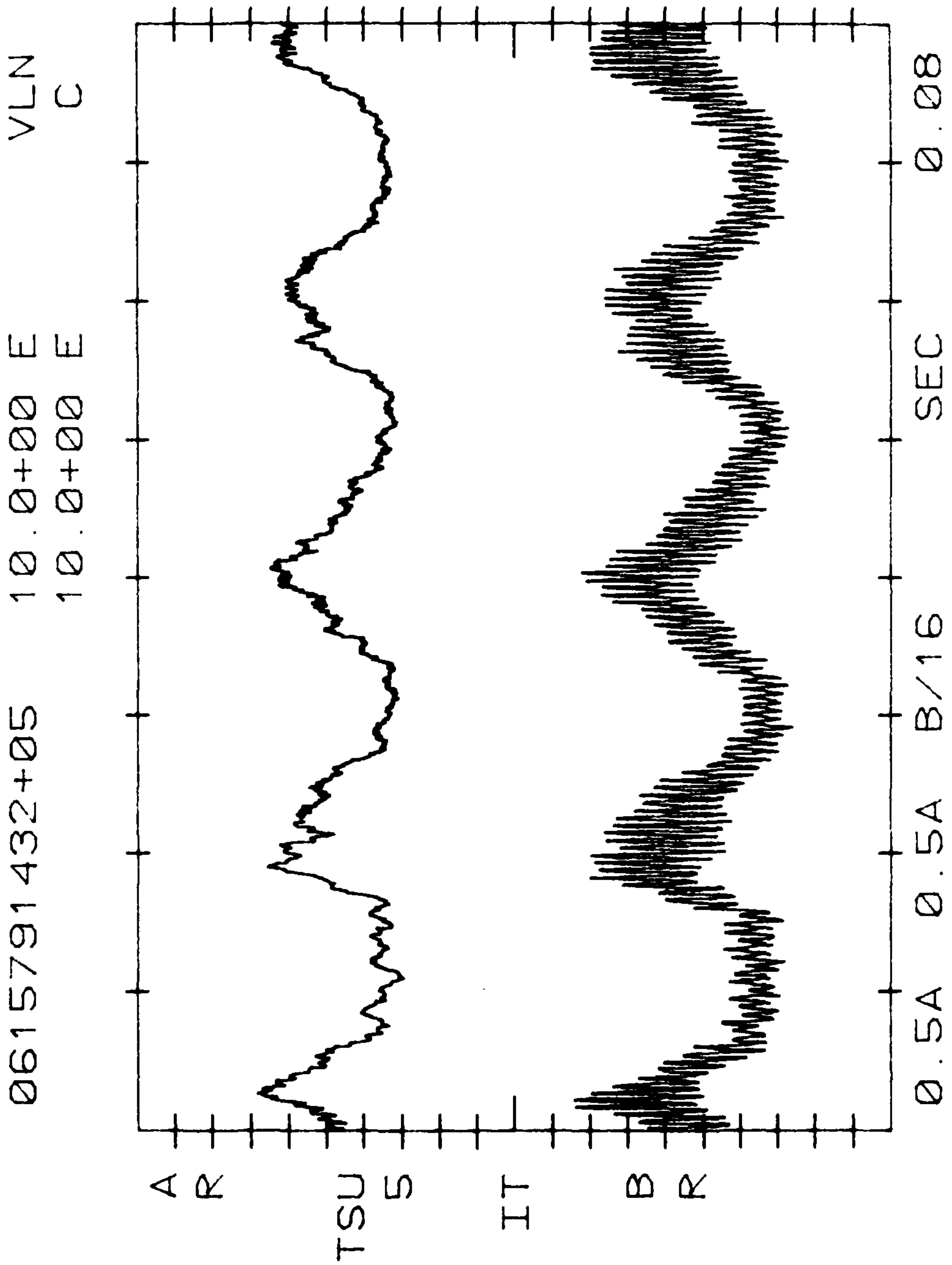
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TSU 5
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B R
0.5A 0.5A B/16 SEC 0.08

SECTION V

DATA LISTINGS

RMS spectrum peak values of pressure amplitude and phase angle at the frequency of the peaks was recorded for all cases throughout the parametrics where a peak in RMS pressure at less than 500 Hz was noticed. Some steady state data is included for each file where an instability of less than 500 Hz was noticed.

Following the data with a 500 Hz maximum frequency is a section with data up to 10,000 Hz for selected files with an eight inch diameter combustor. The selected files include all files with uniform injectors and no flameholder and all files with a 4.75 in. diameter inlet with no flameholder or a 25% Y type flameholder. The 10,000 Hz data also includes broadband RMS pressure values for quick instability amplitude comparisons.

1. DESCRIPTION OF DATA LISTINGS

FIRST LINE OF FILE

FIRST DATA LISTING PHRASE	-	CHAMBER DIAMETER
'6 IN. CHAMB.'	-	6. inch chamber diameter, D3=6."
'8 IN. CHAMB.'	-	8. inch chamber diameter, D3=8."
'12 IN. CHAMB.'	-	12. inch chamber diameter, 3=12."
SECOND DATA LISTING PHRASE	-	INLET DIAMETER
'3 IN. INLET'	-	3. inch inlet diameter, D2=3."
'3.5 INLET'	-	3.5 inch inlet diameter, D2=3.5"
'4 IN. INLET'	-	4. inch inlet diameter, D2=4."
'4.75 INLET'	-	4.75 inch inlet diameter, D2=4.75"
'5.375 INLET'	-	5.375 inch inlet diameter, D2=5.375"
'6 IN. INLET'	-	6. inch inlet diameter, D2=6."
'7 IN. INLET'	-	7. inch inlet diameter, D2=7."
'8 IN. INLET'	-	8. inch inlet diameter, D2=8."
THIRD DATA LISTING PHRASE	-	FLAMEHOLDER
'NO F.HOLD.'	-	no flameholding blockage at dump
'.25Y F.H.'	-	a 'Y' (see Table 3) configuration flameholder with 25% of inlet area blockage located at the dump plane
'.35Y F.H.'	-	a 'Y' configuration flameholder (see Table 3) with 35% of inlet area blockage located at the dump plane

FOURTH DATA LISTING PHRASE	-	VARIATION FROM BASELINE CONDITION
'BASELINE'	-	The condition for each inlet, flameholder combination from which parametric variations were made. For the baseline, the inlet air total temperature was set at 1000°R, the mass flow was set to obtain a chamber pressure times diameter product of 200 PSIA*inches (mass flow equals 4 lbs/sec for D3=6.", 5.55 lbs/sec for D3=8.", and 8.33 lbs/sec for D3=12."), the nozzle throat area was 50% of the chamber area (A^*/A_5=.5), and the chamber length to diameter ratio was three (L/D=3.0).
'TTO-750R'	-	the inlet air total temperature was set to 750°R
'TTO-1250R'	-	the inlet air total temperature was set to 1250°R
'LOW FLOW'	-	the chamber pressure times diameter product was reduced to 120 PSIA*inches giving mass flows of 2.49 lbs/sec, 3.33 lbs/sec, and 5 lbs/sec for chamber diameters of 6 in., 8 in., and 12 in., respectively
'40% NOZ.'	-	Nozzle throat area equals 40% of chamber area (A^*/A_5=.4). Mass flow was adjusted to 3.24 lbs/sec, 4.44 lbs/sec, and 6.66 lbs/sec for chamber diameters of 6 in., 8 in., and 12 in., respectively, to maintain baseline chamber pressure.
'60% NOZ.'	-	Nozzle throat area equaled 60% of chamber area (A^*/A_3=.6). Mass flow was adjusted to 4.86 lbs/sec, 6.66 lbs/sec, and 10. lbs/sec for chamber diameters of 6, 8, and 12 in., respectively, to maintain baseline chamber pressure.
'L/D=1.5'	-	chamber length was reduced to 1.5 times the chamber diameter
FIFTH DATA LISTING PHRASE	-	FUEL INJECTION TYPE
'UNIF. INJ.'	-	uniform or midstream fuel injection far upstream of the combustor to obtain a uniform fuel distribution at the dump plane
'TUBE INJ.'	-	orifice fuel injectors (see Figure 4 _) located flush with the inlet wall. The injector orifice diameter was adjusted to obtain a designated percentage of inlet diameter fuel penetration (see Table 2).

NUMBERED LINES - PERFORMANCE DATA

Each number starts a new record of information. A record consists of data from one fuel air ratio for the conditions of the file heading. There may also be a record with no fuel and a record with no fuel and ambient inlet air temperature.

'F/A'	-	fuel to air ratio of the record. The fuel used was JP4 which has a stoichiometric F/A of .0676.
'ETAC'	-	the temperature rise combustion efficiency in percent of the ramjet combustor calculated from thrust measurements
'TT5F'	-	combustion chamber exhaust gasses total temperature (^{o}R) calculated from thrust measurements
'PT5/PT2'	-	percent of total pressure recovered after the dump
'M2'	-	Mach number of the air in the inlet
'PSI'	-	static pressure in the inlet in PSIA
'PCI'	-	static pressure at aft of combustion chamber in PSIA

'AT' LINES - BROADBAND RMS PRESSURES

The number following 'AT' is the location number (see Figure 3) where the following broadband RMS pressures were measured.

'RMS12'	-	the RMS pressure in PSI of all variations in pressure of from 25 to 100 Hz from 25 to 75 Hz and from 12 to 50 Hz for 6, 8 and 12 in. diameter combustors, respectively
'RMS23'	-	the RMS pressure in PSI of all pressure variations from 100 to 1600 Hz, from 75 to 1200 Hz, and from 50 to 800 Hz for 6, 8 and 12 in. diameter combustors, respectively
'RMS34'	-	the RMS pressure in PSI of all pressure variations from 1600 to 10,000 Hz, from 1200 to 7500 Hz and from 800 to 5,000 Hz for 6, 8 and 12 in. diameter combustors, respectively

NOTE - Total RMS pressure = $[(RMS12)^2 + (RMS23)^2 + (RMS34)^2]^{1/2}$

FREQUENCY LINES

XXX. HZ	-	Frequency of a peak amplitude of RMS pressure. Note: For data with a 500 Hz maximum frequency, resolution bandwidth was 1.25 Hz while for a maximum frequency of 10,000 Hz, the resolution bandwidth was 25. Hz.
A(n)	-	the magnitude of the RMS pressute in RMS-PSI at frequency specified at the beginning of the line at location number n (see Figure 3)
PHASE (n m)	-	the phase angle difference of the pressure oscillations from location n to location m at the frequency specified

For example, if the unstable pressure at location n is $X_n(t)=B\sin(\omega t+\phi_n)$, and the unstable pressure at location m is $X_m(t)=C\sin(\omega t+\phi_m)$, then the frequency line would be

$\{\omega/2\pi\}$ HZ A(n)=$\{B/\sqrt{2}\}$ RMSPSI, A(m)=$\{C/\sqrt{2}\}$ RMSPSI
PHASE (n m)=$\{\phi_m-\phi_n\}$ DEG.

where brackets indicate numerical values.

2. DATA LISTINGS

a. Low Frequency Combustion Instabilities for a Six Inch Diameter Chamber

6IN.CHAMB. 3IN. INLET NO F.HOLD. TT3=1250K TUBE INJ.

1	F/A=0.0000	ETAC= 0.0	TT5F= 1232.	PT5/PT2= 46.8	M2= .715	PSI= 22.22	PCI= 15.48
2	F/A= .0694	ETAC= 76.[illegible]	TT5F= 3649.	PT5/PT2= 79.1	M2= .607	PSI= 33.97	PCI= 33.99
	293.5HZ	A(7)= .4994RMSPSI	A(8)= 1.426RMSPSI				
3	F/A= .0630	ETAC= 76.5	TT5F= 3636.	PT5/PT2= 79.0	M2= .619	PSI= 33.30	PCI= 33.71
4	F/A= .0573	ETAC= 78.5	TT5F= 3527.	PT5/PT2= 79.4	M2= .639	PSI= 32.38	PCI= 33.16
5	F/A= .0522	ETAC= 80.0	TT5F= 3446.	PT5/PT2= 76.8	M2= .655	PSI= 31.87	PCI= 32.69
6	F/A= .0433	ETAC= 81.3	TT5F= 3209.	PT5/PT2= 77.6	M2= .689	PSI= 30.60	PCI= 32.14
7	F/A= .0401	ETAC= 81.1	TT5F= 3031.	PT5/PT2= 77.0	M2= .717	PSI= 29.67	PCI= 31.13
8	F/A= .0351	ETAC= 76.0	TT5F= 2669.	PT5/PT2= 73.9	M2= .796	PSI= 26.52	PCI= 27.32
9	F/A= .0289	ETAC= 76.4	TT5F= 2470.	PT5/PT2= 71.5	M2= .848	PSI= 24.56	PCI= 25.39
10	F/A= .0252	ETAC= 69.1	TT5F= 2307.	PT5/PT2= 67.4	M2= .873	PSI= 23.91	PCI= 24.30

```
6IN.CHAMB.    3IN. INLET    NO F.HOLD.     LOW FLOW      TUBE INJ.
   1     F/A= .0625    ETAC= 60.5    TT5F= 2915.    PT5/PT2= 77.8    M2= .577    PSI= 19.36    PCI= 19.11
   2     F/A= .0594    ETAC= 65.9    TT5F= 3026.    PT5/PT2= 75.4    M2= .587    PSI= 19.74    PCI= 19.47
   3     F/A= .0546    ETAC= 70.5    TT5F= 3067.    PT5/PT2= 76.3    M2= .583    PSI= 19.84    PCI= 19.49
            205.0HZ  A( 7)= 1.493RMSPSI   A( 8)=  .371RMSPSI
   4     F/A= .0494    ETAC= 75.3    TT5F= 3070.    PT5/PT2= 78.6    M2= .594    PSI= 19.44    PCI= 19.31
            202.5HZ  A( 7)= 1.005RMSPSI   A( 8)=  .723RMSPSI
   5     F/A= .0455    ETAC= 77.1    TT5F= 3000.    PT5/PT2= 76.2    M2= .607    PSI= 19.14    PCI= 19.20
   6     F/A= .0415    ETAC= 61.1    TT5F= 2467.    PT5/PT2= 75.3    M2= .691    PSI= 16.55    PCI= 16.51
   7     F/A= .0351    ETAC= 62.2    TT5F= 2311.    PT5/PT2= 74.2    M2= .728    PSI= 15.67    PCI= 15.54
   8     F/A= .0313    ETAC= 59.7    TT5F= 2149.    PT5/PT2= 72.7    M2= .769    PSI= 14.84    PCI= 14.71
   9     F/A= .0255    ETAC= 63.2    TT5F= 1994.    PT5/PT2= 70.7    M2= .813    PSI= 13.90    PCI= 13.67
```

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6IN.CHAMB.   3IN. INLET   NO F.HOLD.   40% NOZ.     TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  923.   PT5/PT2= 60.7   M2= .904   PSI= 16.11   PCI= 16.43
  2   F/A= .0642   ETAC= 69.7   TT5F= 3225.   PT5/PT2= 79.8   M2= .402   PSI= 38.28   PCI= 35.08
         205.0HZ  A( 7)=  .774KMSPSI   A( 8)= 5.841KMSPSI
         410.0HZ  A( 7)= 3.005KMSPSI   A( 8)= 1.046KMSPSI
  3   F/A= .0582   ETAC= 73.0   TT5F= 3225.   PT5/PT2= 80.5   M2= .406   PSI= 37.23   PCI= 35.09
         208.8HZ  A( 7)= 1.239KMSPSI   A( 8)= 6.380KMSPSI
         417.5HZ  A( 7)= 1.439KMSPSI   A( 8)= 7.675KMSPSI
  4   F/A= .0538   ETAC= 74.4   TT5F= 3145.   PT5/PT2= 81.3   M2= .422   PSI= 36.46   PCI= 34.55
         211.3HZ  A( 7)= 2.127KMSPSI   A( 8)= 5.841KMSPSI
         422.5HZ  A( 7)= 6.411KMSPSI   A( 8)= 1.155KMSPSI
  5   F/A= .0499   ETAC= 76.1   TT5F= 3099.   PT5/PT2= 82.2   M2= .441   PSI= 35.44   PCI= 34.34
         215.0HZ  A( 7)= 1.179KMSPSI   A( 8)= 4.670KMSPSI
         430.0HZ  A( 7)=  .145KMSPSI   A( 8)=  .730KMSPSI
         215.0HZ  A( 1)= 3.961KMSPSI   A( 6)= 5.271KMSPSI
         430.0HZ  A( 1)= 1.033KMSPSI   A( 6)= 1.352KMSPSI
  6   F/A= .0429   ETAC= 77.7   TT5F= 2919.   PT5/PT2= 83.6   M2= .473   PSI= 32.84   PCI= 33.35
  7   F/A= .0418   ETAC= 78.6   TT5F= 2911.   PT5/PT2= 83.6   M2= .482   PSI= 31.49   PCI= 31.83
  8   F/A= .0346   ETAC= 79.4   TT5F= 2654.   PT5/PT2= 83.3   M2= .519   PSI= 29.35   PCI= 30.27
  9   F/A= .0310   ETAC= 79.2   TT5F= 2497.   PT5/PT2= 83.0   M2= .544   PSI= 28.05   PCI= 29.03
 10   F/A= .0264   ETAC= 77.8   TT5F= 2284.   PT5/PT2= 82.1   M2= .581   PSI= 26.36   PCI= 27.27
 11   F/A= .0651   ETAC= 71.2   TT5F= 3299.   PT5/PT2= 80.9   M2= .409   PSI= 37.44   PCI= 34.46
         205.0HZ  A( 4)= 1.466KMSPSI   A( 6)= 7.366KMSPSI
         410.0HZ  A( 4)=  .425KMSPSI   A( 6)= 2.142KMSPSI
 12   F/A= .0591   ETAC= 75.5   TT5F= 3324.   PT5/PT2= 82.0   M2= .415   PSI= 36.52   PCI= 34.21
         208.8HZ  A( 4)= 1.296KMSPSI   A( 6)= 6.355KMSPSI
         417.5HZ  A( 4)=  .482KMSPSI   A( 6)= 1.911KMSPSI
 13   F/A= .0551   ETAC= 76.1   TT5F= 3251.   PT5/PT2= 82.4   M2= .429   PSI= 35.41   PCI= 33.58
         212.5HZ  A( 4)= 1.291KMSPSI   A( 6)= 6.941KMSPSI
         425.0HZ  A( 4)=  .424KMSPSI   A( 6)= 1.527KMSPSI
 14   F/A= .0514   ETAC= 77.5   TT5F= 3210.   PT5/PT2= 83.3   M2= .445   PSI= 34.24   PCI= 33.17
         213.6HZ  A( 4)= 1.091KMSPSI   A( 6)= 4.837KMSPSI
         427.5HZ  A( 4)= 1.026KMSPSI   A( 6)= 1.026KMSPSI
 15   F/A= .0438   ETAC= 79.1   TT5F= 3007.   PT5/PT2= 84.6   M2= .482   PSI= 31.69   PCI= 32.25
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6IN.CHAMB.   3IN. INLET   NO F.HOLD.   40% NOZ.   TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  521.   PT5/PT2= 61.9   M2= .906   PSI= 11.81   PCI= 10.91
  2   F/A=0.0000   ETAC=  0.?   TT5F=  971.   PT5/PT2= 61.1   M2= .926   PSI= 15.92   PCI= 14.85
  3   F/A= .0653   ETAC= 70.7   TT5F= 3284.   PT5/PT2= 83.6   M2= .433   PSI= 34.75   PCI= 31.22
        209.HZ  A( 4)= 7.675RMSPSI,  A( 8)= 6.334RMSPSI,  PHASE( 4 8)=  19.5DEG.
        418.HZ  A( 4)= 2.342RMSPSI,  A( 8)= 1.493RMSPSI,  PHASE( 4 8)=  13.4DEG.
  4   F/A= .0614   ETAC= 74.4   TT5F= 3346.   PT5/PT2= 84.7   M2= .442   PSI= 34.65   PCI= 31.72
        214.HZ  A( 4)= 7.135RMSPSI,  A( 8)= 6.037RMSPSI,  PHASE( 4 8)=  17.0DEG.
        428.HZ  A( 4)= 2.204RMSPSI,  A( 8)= 1.507RMSPSI,  PHASE( 4 8)=   5.3DEG.
  5   F/A= .0543   ETAC= 74.4   TT5F= 3180.   PT5/PT2= 85.0   M2= .464   PSI= 33.14   PCI= 31.20
        214.HZ  A( 4)= 5.543RMSPSI,  A( 8)= 4.762RMSPSI,  PHASE( 4 8)=  14.8DEG.
        429.HZ  A( 4)= 1.649RMSPSI,  A( 8)= 1.005RMSPSI,  PHASE( 4 8)=  -1.1DEG.
  6   F/A= .0508   ETAC= 76.5   TT5F= 3150.   PT5/PT2= 80.6   M2= .482   PSI= 32.29   PCI= 31.11
        216.HZ  A( 4)= 4.731RMSPSI,  A( 8)= 4.049RMSPSI,  PHASE( 4 8)=  14.1DEG.
        433.HZ  A( 4)= 1.126RMSPSI,  A( 8)=  .739RMSPSI,  PHASE( 4 8)=  -5.1DEG.
  7   F/A= .0463   ETAC= 76.1   TT5F= 3007.   PT5/PT2= 87.3   M2= .508   PSI= 30.61   PCI= 30.96
  8   F/A= .0405   ETAC= 75.?   TT5F= 2806.   PT5/PT2= 85.7   M2= .535   PSI= 28.45   PCI= 29.42
  9   F/A= .0348   ETAC= 76.6   TT5F= 2605.   PT5/PT2= 80.1   M2= .565   PSI= 27.35   PCI= 28.26
 10   F/A= .0300   ETAC= 76.3   TT5F= 2400.   PT5/PT2= 85.3   M2= .598   PSI= 25.79   PCI= 26.96
 11   F/A= .0249   ETAC= 80.5   TT5F= 1945.   PT5/PT2= 83.0   M2= .702   PSI= 21.78   PCI= 22.73
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6IN.CHAMB.    3.5 INLET     NO F.HOLD.    BASELINE      UNIF.INJ.
   1     F/A=0.0000     ETAC=  0.0     TT5F=   956.      PT5/PT2= 63.9     M2= .791     PSI= 17.15     PCI= 13.63
   2     F/A= .0658     ETAC= 69.6     TT5F=  3264.      PT5/PT2= 87.2     M2= .416     PSI= 33.94     PCI= 32.80
              208.HZ  A( 1)= 2.569RMSPSI,  A( 4)= 2.425RMSPSI,  PHASE( 1 4)=   65.9DEG.
              208.HZ  A( 4)= 2.420RMSPSI,  A( 8)= 2.389RMSPSI,  PHASE( 4 8)=   14.2DEG.
              208.HZ  A( 7)= 2.635RMSPSI,  A( 8)= 2.250RMSPSI,  PHASE( 7 8)=    3.7DEG.
              414.HZ  A( 1)=  .556RMSPSI,  A( 4)=  .374RMSPSI,  PHASE( 1 4)=   94.6DEG.
              414.HZ  A( 4)=  .327RMSPSI,  A( 8)=  .222RMSPSI,  PHASE( 4 8)=   20.4DEG.
              416.HZ  A( 7)=  .101RMSPSI,  A( 8)=  .179RMSPSI,  PHASE( 7 8)=  -43.6DEG.
   3     F/A= .0603     ETAC= 71.9     TT5F=  3246.      PT5/PT2= 87.2     M2= .421     PSI= 33.38     PCI= 32.59
              205.HZ  A( 1)= 1.099RMSPSI,  A( 4)=  .985RMSPSI,  PHASE( 1 4)=   64.3DEG.
              205.HZ  A( 4)=  .974RMSPSI,  A( 8)=  .843RMSPSI,  PHASE( 4 8)=   13.9DEG.
              205.HZ  A( 7)=  .925RMSPSI,  A( 8)=  .906RMSPSI,  PHASE( 7 8)=    4.5DEG.
   4     F/A= .0558     ETAC= 76.1     TT5F=  3275.      PT5/PT2= 87.6     M2= .424     PSI= 33.31     PCI= 32.57
   5     F/A= .0510     ETAC= 73.1     TT5F=  3060.      PT5/PT2= 86.9     M2= .441     PSI= 31.98     PCI= 31.24
   6     F/A= .0443     ETAC= 56.3     TT5F=  2680.      PT5/PT2= 85.7     M2= .478     PSI= 29.34     PCI= 28.25
   7     F/A= .0414     ETAC= 55.2     TT5F=  2329.      PT5/PT2= 84.3     M2= .516     PSI= 27.04     PCI= 26.37
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6IN.CHAMB.    3.5 INLET     NO F.HOLD.    BASELINE      TUBE INJ.
   1    F/A=0.0000     ETAC=  0.0     TT5F=  969.     PT5/PT2= 63.9     M2= .791     PSI= 17.21     PCI= 13.81
   2    F/A= .0609     ETAC= 64.9     TT5F= 3040.     PT5/PT2= 83.6     M2= .418     PSI= 34.06     PCI= 30.90
           200.HZ  A( 1)= 5.964RMSPSI,  A( 4)= 6.327RMSPSI,  PHASE( 1 4)=   54.2DEG.
           200.HZ  A( 4)= 5.740RMSPSI,  A( 8)= 4.700RMSPSI,  PHASE( 4 8)=   23.6DEG.
          200.0HZ  A( 6)= 6.673RMSPSI   A( 7)= 5.443RMSPSI
           400.HZ  A( 1)= 1.966RMSPSI,  A( 4)= 1.534RMSPSI,  PHASE( 1 4)=  101.4DEG.
           400.HZ  A( 4)= 1.472RMSPSI,  A( 8)=  .386RMSPSI,  PHASE( 4 8)=   12.2DEG.
          400.0HZ  A( 6)= 1.664RMSPSI   A( 7)= 1.143RMSPSI
   3    F/A= .0563     ETAC= 67.3     TT5F= 3027.     PT5/PT2= 81.6     M2= .410     PSI= 34.69     PCI= 30.24
           209.HZ  A( 1)= 6.873RMSPSI,  A( 4)= 7.644RMSPSI,  PHASE( 1 4)=   60.3DEG.
           209.HZ  A( 4)= 7.595RMSPSI,  A( 8)= 5.933RMSPSI,  PHASE( 4 8)=   23.9DEG.
   4    F/A= .0516     ETAC= 69.1     TT5F= 2966.     PT5/PT2= 81.6     M2= .418     PSI= 33.93     PCI= 26.62
           214.HZ  A( 1)= 5.973RMSPSI,  A( 4)= 7.043RMSPSI,  PHASE( 1 4)=   62.8DEG.
           214.HZ  A( 4)= 6.627RMSPSI,  A( 8)= 5.332RMSPSI,  PHASE( 4 8)=   21.8DEG.
           214.HZ  A( 7)= 5.949RMSPSI,  A( 8)= 5.440RMSPSI,  PHASE( 7 8)=    8.8DEG.
           426.HZ  A( 1)= 2.096RMSPSI,  A( 4)= 2.404RMSPSI,  PHASE( 1 4)=  109.9DEG.
           426.HZ  A( 4)= 2.342RMSPSI,  A( 8)= 1.117RMSPSI,  PHASE( 4 8)=   13.4DEG.
          425.3HZ  A( 7)= 1.880RMSPSI   A( 8)= 1.247RMSPSI
   5    F/A= .0446     ETAC= 71.5     TT5F= 2836.     PT5/PT2= 83.7     M2= .449     PSI= 31.67     PCI= 28.88
           216.HZ  A( 1)= 4.777RMSPSI,  A( 4)= 5.466RMSPSI,  PHASE( 1 4)=   67.5DEG.
           216.HZ  A( 4)= 5.440RMSPSI,  A( 8)= 4.731RMSPSI,  PHASE( 4 8)=   18.6DEG.
           216.HZ  A( 7)= 5.147RMSPSI,  A( 8)= 4.500RMSPSI,  PHASE( 7 8)=    6.1DEG.
           433.HZ  A( 1)= 1.664RMSPSI,  A( 4)= 1.395RMSPSI,  PHASE( 1 4)=  122.5DEG.
           433.HZ  A( 4)= 1.427RMSPSI,  A( 8)=  .871RMSPSI,  PHASE( 4 8)=   -9.6DEG.
          432.5HZ  A( 7)= 1.279RMSPSI   A( 8)=  .804RMSPSI
   6    F/A= .0415     ETAC= 71.6     TT5F= 2722.     PT5/PT2= 83.9     M2= .464     PSI= 30.40     PCI= 28.09
           216.HZ  A( 1)= 4.161RMSPSI,  A( 4)= 4.655RMSPSI,  PHASE( 1 4)=   64.1DEG.
           216.HZ  A( 4)= 4.731RMSPSI,  A( 8)= 3.976RMSPSI,  PHASE( 4 8)=   17.9DEG.
           216.HZ  A( 7)= 4.346RMSPSI,  A( 8)= 3.933RMSPSI,  PHASE( 7 8)=    5.6DEG.
           433.HZ  A( 1)= 1.572RMSPSI,  A( 4)= 1.057RMSPSI,  PHASE( 1 4)=  114.8DEG.
           433.HZ  A( 4)= 1.045RMSPSI,  A( 8)=  .723RMSPSI,  PHASE( 4 8)=  -12.7DEG.
          432.5HZ  A( 7)=  .994RMSPSI   A( 8)=  .633RMSPSI
   7    F/A= .0355     ETAC= 74.2     TT5F= 2588.     PT5/PT2= 85.1     M2= .496     PSI= 28.56     PCI= 27.72
   8    F/A= .0300     ETAC= 73.3     TT5F= 2361.     PT5/PT2= 84.5     M2= .530     PSI= 26.68     PCI= 26.17
   9    F/A= .0261     ETAC= 59.9     TT5F= 1983.     PT5/PT2= 83.4     M2= .600     PSI= 23.21     PCI= 22.68
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6IN.CHAMB.    3.5 INLET    NO F.HOLD.    TT0=750K     UNIF.INJ.
   1     F/A=0.0000     ETAC=  0.0    TT5F=  732.     PT5/PT2= 64.3     M2= .786     PSI= 14.90     PCI= 11.94
   2     F/A= .0603     ETAC= 42.6    TT5F= 2208.     PT5/PT2= 86.4     M2= .442     PSI= 27.61     PCI= 26.72
           180.0HZ  A( 1)= 1.634RMSPSI    A( 4)= 1.587RMSPSI
           358.8HZ  A( 1)=  .333RMSPSI    A( 4)=  .144RMSPSI
   3     F/A= .0601     ETAC= 43.3    TT5F= 2160.     PT5/PT2= 86.0     M2= .451     PSI= 27.16     PCI= 26.29
           181.3HZ  A( 1)= 1.467RMSPSI    A( 4)= 1.541RMSPSI
           181.3HZ  A( 7)= 1.170RMSPSI    A( 8)= 1.005RMSPSI
   4     F/A= .0559     ETAC= 40.0    TT5F= 2001.     PT5/PT2= 85.7     M2= .477     PSI= 25.49     PCI= 24.79
   5     F/A= .0477     ETAC= 18.9    TT5F= 1287.     PT5/PT2= 81.5     M2= .651     PSI= 18.34     PCI= 17.98
   6     F/A= .0454     ETAC= 15.5    TT5F= 1176.     PT5/PT2= 79.9     M2= .700     PSI= 17.03     PCI= 16.60
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6IN.CHAMB.    3.5 INLET     NO F.HOLD.    TT0=750R      TUBE INJ.
   1     F/A= .0418     ETAC= 48.0     TT5F= 1963.     PT5/PT2= 83.3     M2= .472     PSI= 25.72     PCI= 23.96
          173.HZ  A( 7)= 3.221RMSPSI,  A( 8)= 2.743RMSPSI,  PHASE( 7 8)=   10.5DEG.
   2     F/A= .0354     ETAC= 55.7     TT5F= 1971.     PT5/PT2= 84.0     M2= .478     PSI= 25.37     PCI= 23.84
          179.HZ  A( 7)= 2.250RMSPSI,  A( 8)= 1.926RMSPSI,  PHASE( 7 8)=   10.5DEG.
   3     F/A= .0299     ETAC= 56.3     TT5F= 1817.     PT5/PT2= 84.3     M2= .515     PSI= 23.56     PCI= 22.68
          183.HZ  A( 7)=  .519RMSPSI,  A( 8)=  .427RMSPSI,  PHASE( 7 8)=    8.1DEG.
   4     F/A= .0257     ETAC= 53.5     TT5F= 1646.     PT5/PT2= 83.4     M2= .555     PSI= 21.66     PCI= 20.87
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6IN.CHAMB.   3.5 INLET    NO F.HOLD.   TT0=1250R    TUBE INJ.
   1    F/A=0.0000   ETAC=  0.0   TT5F= 1187.   PT5/PT2= 63.6   M2= .790   PSI= 19.39   PCI= 15.54
   2    F/A= .0663   ETAC= 56.2   TT5F= 3296.   PT5/PT2= 85.3   M2= .464   PSI= 34.46   PCI= 32.81
          212.5HZ  A( 7)= 2.743KMSPSI   A( 8)= 2.358KMSPSI
   3    F/A= .0600   ETAC= 70.0   TT5F= 3326.   PT5/PT2= 85.3   M2= .465   PSI= 34.28   PCI= 32.46
          221.HZ  A( 7)= 3.236KMSPSI,  A( 8)= 2.892KMSPSI,  PHASE( 7 8)=   7.8DEG.
   4    F/A= .0549   ETAC= 71.9   TT5F= 3284.   PT5/PT2= 85.2   M2= .474   PSI= 33.89   PCI= 32.11
          223.HZ  A( 7)= 2.944KMSPSI,  A( 8)= 2.635KMSPSI,  PHASE( 7 8)=   7.9DEG.
   5    F/A= .0522   ETAC= 72.7   TT5F= 3245.   PT5/PT2= 85.2   M2= .480   PSI= 33.29   PCI= 31.59
          225.HZ  A( 7)= 2.682KMSPSI,  A( 8)= 2.373KMSPSI,  PHASE( 7 8)=   6.1DEG.
   6    F/A= .0443   ETAC= 74.9   TT5F= 3094.   PT5/PT2= 85.1   M2= .500   PSI= 31.95   PCI= 30.61
   7    F/A= .0409   ETAC= 76.0   TT5F= 3004.   PT5/PT2= 84.5   M2= .512   PSI= 31.12   PCI= 29.90
   8    F/A= .0353   ETAC= 76.2   TT5F= 2810.   PT5/PT2= 84.3   M2= .540   PSI= 29.49   PCI= 28.68
   9    F/A= .0300   ETAC= 77.1   TT5F= 2613.   PT5/PT2= 84.0   M2= .569   PSI= 27.69   PCI= 27.56
  10    F/A= .0258   ETAC= 66.9   TT5F= 2261.   PT5/PT2= 82.0   M2= .631   PSI= 25.15   PCI= 24.79
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6IN.CHAMB.   3.5 INLET    NO F.HOLD.   LOW FLOW     TUBE INJ.
    1    F/A= .0584    ETAC= 26.4    TT5F= 1561.    PT5/PT2= 81.2    M2= .565    PSI= 14.65    PCI= 14.60
    2    F/A= .0540    ETAC= 29.7    TT5F= 1865.    PT5/PT2= 81.6    M2= .578    PSI= 14.89    PCI= 14.79
    3    F/A= .0500    ETAC= 46.5    TT5F= 2350.    PT5/PT2= 83.3    M2= .501    PSI= 17.42    PCI= 16.83
    4    F/A= .0451    ETAC= 50.1    TT5F= 2544.    PT5/PT2= 83.9    M2= .481    PSI= 18.19    PCI= 17.47
              184.HZ  A( 7)= 1.011RMSPSI,  A( 8)=  .715RMSPSI,  PHASE( 7 8)=    9.60EG.
    5    F/A= .0400    ETAC= 55.5    TT5F= 2543.    PT5/PT2= 83.9    M2= .485    PSI= 17.86    PCI= 17.11
              195.HZ  A( 7)= 1.242RMSPSI,  A( 8)=  .715RMSPSI,  PHASE( 7 8)=    9.70EG.
    6    F/A= .0364    ETAC= 59.6    TT5F= 2515.    PT5/PT2= 83.6    M2= .491    PSI= 17.59    PCI= 16.82
              200.HZ  A( 7)= 1.613RMSPSI,  A( 8)= 1.225RMSPSI,  PHASE( 7 8)=    9.20EG.
    7    F/A= .0328    ETAC= 70.6    TT5F= 2413.    PT5/PT2= 83.6    M2= .509    PSI= 17.15    PCI= 16.55
              215.HZ  A( 7)=  .615RMSPSI,  A( 8)=  .504RMSPSI,  PHASE( 7 8)=    6.50EG.
    8    F/A= .0264    ETAC= 74.3    TT5F= 2224.    PT5/PT2= 83.7    M2= .547    PSI= 15.86    PCI= 15.59
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```
6IN.CHAMB.    3.5 INLET     NO F.HOLD.     40% NOZ.       UNIF.INJ.
    1     F/A=0.0000    ETAC=  0.0     TT5F=   977.     PT5/PT2= 78.3     M2= .738     PSI= 15.24     PCI= 15.67
    2     F/A= .0666    ETAC= 61.2     TT5F= 2992.      PT5/PT2= 89.1     M2= .343     PSI= 33.80     PCI= 32.01
               209.HZ  A( 4)= 1.517RMSPSI,  A( 8)= 1.256RMSPSI,  PHASE( 4 8)=   3.4DEG.
               219.HZ  A( 4)= 3.914RMSPSI,  A( 8)= 3.443RMSPSI,  PHASE( 4 8)=  18.3DEG.
    3     F/A= .0603    ETAC= 65.4     TT5F= 3040.      PT5/PT2= 89.5     M2= .345     PSI= 33.51     PCI= 31.85
               165.HZ  A( 4)= 1.973RMSPSI,  A( 8)= 1.530RMSPSI,  PHASE( 4 8)=  16.8DEG.
    4     F/A= .0558    ETAC= 57.9     TT5F= 2729.      PT5/PT2= 88.7     M2= .367     PSI= 31.53     PCI= 29.98
               185.HZ  A( 4)= 2.712RMSPSI,  A( 8)= 2.358RMSPSI,  PHASE( 4 8)=  19.6DEG.
    5     F/A= .0516    ETAC= 53.3     TT5F= 2520.      PT5/PT2= 88.6     M2= .390     PSI= 29.69     PCI= 28.63
               175.HZ  A( 4)= 2.065RMSPSI,  A( 8)= 1.772RMSPSI,  PHASE( 4 8)=  20.4DEG.
    6     F/A= .0434    ETAC= 54.3     TT5F= 2369.      PT5/PT2= 88.7     M2= .411     PSI= 28.35     PCI= 27.46
               203.HZ  A( 4)= 1.587RMSPSI,  A( 8)= 1.259RMSPSI,  PHASE( 4 8)=  21.1DEG.
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RIN.CHAR.  [illegible] INPUT  [illegible]  [illegible]  TOT= 1[illegible]3.
 1  F/A=[illegible]  ETAC= [illegible]  TT5F= [illegible]3[illegible].  PT5/PT2= 7[illegible].3  M2= .7[illegible]4  PSI= 11.27  PCI= 11.58
 2  F/A=[illegible]  ETAC= [illegible]  TT5F= [illegible]53.  PT5/PT2= 77.7  M2= .7[illegible]5  PSI= 15.1[illegible]  PCI= 15.54
 3  F/A=[illegible]  ETAC= [illegible]  TT5F= [illegible]1[illegible]5.  PT5/PT2= [illegible]  M2= .3[illegible]  PSI= 33.71  PCI= 32.08
      153.HZ  A( 4)= [illegible]PSI.  A( 8)= 3.[illegible]PSI.  PHASE( 4 8)=  11.1[illegible]G.
      235.HZ  A( 4)= [illegible]PSI.  A( 8)= [illegible]PSI.  PHASE( 4 8)=  15.50EG.
 4  F/A= .[illegible]  ETAC= [illegible].7  TT5F= [illegible].  PT5/PT2= 87.5  M2= .337  PSI= 34.29  PCI= 30.78
      17[illegible].HZ  A( 4)= [illegible]PSI.  A( 8)= 3.7[illegible]PSI.  PHASE( 4 8)=  1[illegible].2[illegible]G.
 5  F/A= .[illegible]  ETAC= [illegible]  TT5F= 2787.  PT5/PT2= 87.2  M2= .34[illegible]  PSI= 3[illegible].1[illegible]  PCI= 30.55
      13[illegible].HZ  A( 4)= [illegible]PSI.  A( 8)= 4.[illegible]PSI.  PHASE( 4 8)=  1[illegible].20EG.
      3[illegible].HZ  A( 4)= [illegible].14[illegible]PSI.  A( 8)= 1.42[illegible]PSI.  PHASE( 4 8)=  9.30EG.
 6  F/A= .[illegible]  ETAC= [illegible]  TT5F= 2[illegible].  PT5/PT2= 37.2  M2= .34[illegible]  PSI= 33.41  PCI= 2[illegible].98
      1[illegible].HZ  A( 4)= [illegible].73[illegible]PSI.  A( 8)= 4.[illegible]PSI.  PHASE( 4 8)=  17.9[illegible]G.
      37[illegible].HZ  A( 4)= [illegible]PSI.  A( 8)= 1.[illegible]PSI.  PHASE( 4 8)=  [illegible]1.5[illegible]EG.
 7  F/A= .[illegible]  ETAC= [illegible]  TT5F= [illegible]5[illegible].  PT5/PT2= [illegible]7.2  M2= .3[illegible]  PSI= 3[illegible].[illegible]  PCI= 27.88
      1[illegible]1.HZ  A( 4)= [illegible].7[illegible]PSI.  A( 8)= 2.[illegible]PSI.  PHASE( 4 8)=  [illegible]EG.
      [illegible].HZ  A( 4)= [illegible].4[illegible]PSI.  A( 8)= .[illegible]PSI.  PHASE( 4 8)=  31.20EG.
 8  F/A= .[illegible]  ETAC= 7[illegible]  TT5F= 2[illegible]5.  PT5/PT2= [illegible].1  M2= .37[illegible]  PSI= 31.[illegible]7  PCI= [illegible].5[illegible]
      1[illegible]5.HZ  A( 4)= [illegible]PSI.  A( 8)= 3.[illegible]PSI.  PHASE( 4 8)=  1[illegible].10EG.
      3[illegible].HZ  A( 4)= [illegible].1[illegible]PSI.  A( 8)= .7[illegible]PSI.  PHASE( 4 8)=  22.7[illegible]G.
 9  F/A= .[illegible]345  ETAC= 7[illegible]  TT5F= 25[illegible].  PT5/PT2= [illegible].1  M2= .3[illegible]  PSI= 23.94  PCI= 27.55
      23[illegible].HZ  A( 4)= [illegible].52[illegible]PSI.  A( 8)= 2.[illegible]PSI.  PHASE( 4 8)=  17.50EG.
10  F/A= .[illegible]3  ETAC= 73.[illegible]  TT5F= [illegible]35[illegible].  PT5/PT2= 6[illegible]  M2= .41[illegible]  PSI= 27.52  PCI= 27.00
11  F/A= .[illegible]  ETAC= 7[illegible]  TT5F= 2132.  PT5/PT2= [illegible]  M2= .4[illegible]  PSI= 2[illegible].7[illegible]  PCI= 25.2[illegible]
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6IN.CHAM1.   3.5 INLET     [illegible]      90% NOZ.      TURB INJ.
  1    F/A=0.0000    ETAC=  0.        TT5F=  471.     PT5/PT2= 53.3    M2= .733    PSI= 21.19    PCI= 11.92
  2    F/A= .0573    ETAC= 46.1       TT5F= 2231.     PT5/PT2= 78.7    M2= .613    PSI= 27.47    PCI= 25.77
  3    F/A= .0723    ETAC= 61.7       TT5F= 2779.     PT5/PT2= 77.4    M2= .537    PSI= 31.81    PCI= 24.02
           200.HZ  A( 4)= 2.604E-03PSI,  A( 8)= 1.034E-03PSI,  PHASE( 4 8)=   22.30DEG.
  4    F/A= .0490    ETAC= 55.1       TT5F= 2794.     PT5/PT2= 79.8    M2= .536    PSI= 31.69    PCI= 28.88
           220.HZ  A( 4)= 3.473E-03PSI,  A( 8)= 2.342E-03PSI,  PHASE( 4 8)=   22.30DEG.
  5    F/A= .0438    ETAC= 75.8       TT5F= 2930.     PT5/PT2= 80.7    M2= .531    PSI= 32.11    PCI= 29.38
  6    F/A= .0405    ETAC= 77.9       TT5F= 2847.     PT5/PT2= 80.3    M2= .543    PSI= 31.42    PCI= 29.04
  7    F/A= .0347    ETAC= 74.[illegible] TT5F= 2552.  PT5/PT2= 77.3    M2= .580    PSI= 27.01    PCI= 27.18
  8    F/A= .0297    ETAC= 79.[illegible] TT5F= 2037.  PT5/PT2= 77.7    M2= .659    PSI= 24.30    PCI= 22.58
  9    F/A= .0257    ETAC= 54.[illegible] TT5F= 1837.  PT5/PT2= 75.1    M2= .727    PSI= 22.45    PCI= 20.82
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6IN.CHAMB.    3.5 INLET     80 F.HOLD.    L/D=1.5       TUBE INJ.
    1    F/A=0.0000     ETAC=  0.0     TT5F= 1032.      PT5/PT2= 65.9     M2= .739     PSI= 17.31     PCI=  8.56
    2    F/A= .0442     ETAC= 55.4     TT5F= 2410.      PT5/PT2= 83.4     M2= .493     PSI= 23.22     PCI= 26.34
             201.HZ  A( 4)=  .755*MSPSI,  A( 8)=  .[illegible]MSPSI,  PHASE( 4 8)=     6.9DEG.
    3    F/A= .0411     ETAC= 57.4     TT5F= 2385.      PT5/PT2= 83.5     M2= .534     PSI= 20.41     PCI= 25.05
             234.HZ  A( 4)=  .835*MSPSI,  A( 8)=  .704*MSPSI,  PHASE( 4 8)=     8.4DEG.
    5    F/A= .0311     ETAC= 47.1     TT5F= 1379.      PT5/PT2= 82.9     M2= .609     PSI= 22.95     PCI= 22.11
    6    F/A= .0262     ETAC= 44.4     TT5F= 1410.      PT5/PT2= 82.6     M2= .637     PSI= 21.73     PCI= 20.85
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                                                      [illegible]  .INJ.
BIN.CHAM4.   3.5 INLET     .[illegible] F.M.    TT[illegible]       PT5/PT2= 47.4      M2= .467    PSI= 25.06     PCI= 15.41
   1     F/A=0.[illegible]     .TAC= [illegible]      TT5F=  718.      PT5/PT2= 41.6      M2= .312    PSI= 39.30     PCI= 33.58
   2     F/A= .[illegible]     .TAC= 77.4      TT5F= 3[illegible].
             24 .HZ   A( 7)= 5.517[illegible]PSI.   A( 8)= 5.[illegible]PSI.   PHASE( 7 8)=     5.5DEG.
                                       TT5F= 3259.      PT5/PT2= 81.0      M2= .320    PSI= 33.31     PCI= 32.83
   3     F/A= .[illegible]     .TAC= 77.[illegible]
            241.HZ   A( 7)= 5.[illegible]PSI.   A( 8)= 4.7[illegible]PSI.   PHASE( 7 8)=     4.[illegible]DEG.
                                       TT5F= 3[illegible].      PT5/PT2= 77.4      M2= .330    PSI= 37.29     PCI= 31.31
   4     F/A= .[illegible]     .TAC= 73.[illegible]
            [illegible].HZ   A( 7)= [illegible]PSI.   A( 8)= 4.[illegible]PSI.   PHASE( 7 8)=     [illegible].3DEG.
                                       TT5F= 2[illegible].      PT5/PT2= 77.7      M2= .341    PSI= 30.18     PCI= 29.94
   5     F/A= .[illegible]     .TAC= [illegible]
            [illegible].HZ   A( 7)= 5.[illegible]PSI.   A( 8)= 5.[illegible]PSI.   PHASE( 7 8)=     [illegible].5DEG.
            4[illegible].HZ   A( 7)= [illegible]PSI.   A( 8)=  .[illegible]PSI.   PHASE( 7 8)=    2[illegible].7DEG.
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BIN.CHAMB.   [illegible] INL-T   [illegible]   TT =[illegible]   FUEL INJ.
 1   F/A=0.[illegible]   ETAC= [illegible]   TT5= 731.      PT5/PT2= 47.5   M2= .467   PSI= 26.18   PCI= 13.55
 2   F/A= .[illegible]   ETAC= [illegible]   TT5= [illegible]   PT5/PT2= 7[illegible]   M2= .35[illegible]   PSI= 35.04   PCI= 29.12
        1[illegible].HZ   A( 7)= [illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 7 8)=   [illegible]
        2[illegible]1.HZ   A( 7)= [illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 7 8)=   [illegible]
 3   F/A= .[illegible]   ETAC= [illegible]   TT5= 2[illegible]   PT5/PT2= 7[illegible]   M2= .351   PSI= 35.C4   PCI= 29.0[illegible]
 4   F/A= .[illegible]   ETAC= [illegible]   TT5= 2[illegible]   PT5/PT2= 77.6   M2= .347   PSI= 35.47   PCI= 29.11
 5   F/A= .[illegible]   ETAC= [illegible]   TT5= 2[illegible]   PT5/PT2= 76.7   M2= .35[illegible]   PSI= 34.7[illegible]   PCI= 28.01
        1[illegible].HZ   A( 7)= [illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 7 8)=   [illegible]
        1[illegible].HZ   A( 7)= [illegible]PSI,   A( 8)= 2.[illegible]PSI,   PHASE( 7 8)=   1[illegible]
 6   F/A= .[illegible]   ETAC= [illegible]   TT5= 2[illegible]   PT5/PT2= 77.7   M2= .351   PSI= 3[illegible]   PCI= 28.97
        1[illegible].HZ   A( 7)= [illegible]PSI,   A( 8)= 2.[illegible]PSI,   PHASE( 7 8)=   [illegible]
 7   F/A= .[illegible]   ETAC= 76.[illegible]   TT5= [illegible]   PT5/PT2= 75.3   M2= .347   PSI= 3[illegible]   PCI= 29.1[illegible]
        2[illegible]3.HZ   A( 7)= [illegible]PSI,   A( 8)= 2.[illegible]PSI,   PHASE( 7 8)=   7.2[illegible]
 8   F/A= .0411   ETAC= 77.7   TT5= 2[illegible]   PT5/PT2= 76.[illegible]   M2= .357   PSI= 34.5[illegible]   PCI= 26.74
        1[illegible].HZ   A( 7)= 1.[illegible]PSI,   A( 8)=*******[illegible]PSI,   PHASE( 7 8)=   9.4[illegible]
 9   F/A= .[illegible]   ETAC= [illegible]   TT5= 2[illegible]   PT5/PT2= 77.4   M2= .362   PSI= 33.84   PCI= 27.41
10   F/A= .02[illegible]   ETAC= [illegible]   TT5= [illegible]   PT5/PT2= 7[illegible]   M2= .364   PSI= 32.64   PCI= 26.2
11   F/A= .[illegible]   ETAC= 7[illegible]   TT5= [illegible]   PT5/PT2= 73.4   M2= .4[illegible]   PSI= 3[illegible].46   PCI= 24.31
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6IN.CHAMB.   3.5 INLET    .25V F.H.    4 . 10Z.    UNIF.INJ.
  1   F/A=0.0000   ETAC= [illegible]   TT5F=  529.   PT5/PT2= 59.2   M2= .455   PSI= 17.53   PCI= 11.87
  2   F/A=0.0000   ETAC= [illegible]   TT5F=  951.   PT5/PT2= 58.7   M2= .457   PSI= 24.45   PCI= 16.38
  3   F/A= .0443   ETAC= 41.4   TT5F= 3752.   PT5/PT2= 86.5   M2= .281   PSI= 41.23   PCI= 36.82
  4   F/A= .0577   ETAC= 92.2   TT5F= 3672.   PT5/PT2= 86.4   M2= .280   PSI= 40.39   PCI= 36.06
  5   F/A= .0552   ETAC= 87.5   TT5F= 3597.   PT5/PT2= 86.0   M2= .331   PSI= 38.58   PCI= 35.19
        289.HZ   A( 4)=  .632[illegible]PSI,   A( 8)=  .5218RMSPSI,   PHASE( 4 8)=   16.7DEG.
  6   F/A= .0514   ETAC= 95.8   TT5F= 3430.   PT5/PT2= 85.2   M2= .365   PSI= 37.48   PCI= 34.00
        308.HZ   A( 4)= 1.344[illegible]PSI,   A( 8)= 1.051RMSPSI,   PHASE( 4 8)=   19.3DEG.
  7   F/A= .0439   ETAC= 94.6   TT5F= 3267.   PT5/PT2= 84.7   M2= .317   PSI= 36.21   PCI= 32.09
        275.HZ   A( 4)= 1.157[illegible]PSI,   A( 8)= 1.322RMSPSI,   PHASE( 4 8)=   17.3DEG.
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6IN.CHAMB.   3.5 INLET   .33Y [illegible]   [illegible] FLOW   TUBE INJ.
 1   F/A=[illegible]   ETAC=  0.     TT5F=  984.   PT5/PT2= 41.3   M2= .391   PSI= 22.09   PCI=  9.84
 2   F/A= .0674   ETAC= 91.[illegible]   TT5F= 3659.   PT5/PT2= 74.3   M2= .317   PSI= 27.47   PCI= 20.29
 3   F/A= .0599   ETAC= 92.5   TT5F= 3590.   PT5/PT2= 74.2   M2= .324   PSI= 26.88   PCI= 20.32
 4   F/A= [illegible]   ETAC= 91.2   TT5F= 3421.   PT5/PT2= 73.3   M2= .332   PSI= 26.01   PCI= 19.93
 5   F/A= .0567   ETAC= 95.7   TT5F= 3400.   PT5/PT2= 73.1   M2= .334   PSI= 25.91   PCI= 19.98
         246.HZ  AT 4)= .[illegible]PSI.  AT 5)= .521E[illegible]PSI,  PHASE( 4 8)=  21.50DEG.
 6   F/A= .0440   ETAC= 95.2   TT5F= 3151.   PT5/PT2= 71.2   M2= .341   PSI= 25.43   PCI= 19.20
         225.HZ  AT 4)= .97[illegible]PSI.  AT 5)= .79[illegible]PSI,  PHASE( 4 8)=  24.40DEG.
 7   F/A= .0400   ETAC= 95.[illegible]   TT5F= 3000.   PT5/PT2= 70.1   M2= .347   PSI= 24.91   PCI= 18.51
 8   F/A= .0355   ETAC= 94.1   TT5F= 2754.   PT5/PT2= 68.4   M2= .356   PSI= 24.19   PCI= 17.62
 9   F/A= .0319   ETAC= 93.6   TT5F= 2524.   PT5/PT2= 67.0   M2= .362   PSI= 23.76   PCI= 17.03
10   F/A= .0267   ETAC= [illegible]   TT5F= 1702.   PT5/PT2= 56.1   M2= .387   PSI= 22.36   PCI= 13.41
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BIN.CHAMS.   4IN. INLET   [illegible]   [illegible]   INIT.INJ.
  1   F/A=[illegible]   ETAC= [illegible]   TT3= [illegible]   PT5/PT2= 80.1   M2= .705   PSI= 10.73   PCI= 11.14
  2   F/A=[illegible]   ETAC= [illegible]   TT3= [illegible]   PT5/PT2= 83.4   M2= .723   PSI= 14.72   PCI= 15.30
  3   F/A= .[illegible]   ETAC= [illegible]   TT3= 2315.   PT5/PT2= 87.1   M2= .341   PSI= 31.84   PCI= 29.64
      [illegible].HZ   A( 4)= 3.3[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   17.8DEG.
      4[illegible].HZ   A( 4)= .61[illegible]PSI,   A( 8)= .61[illegible]PSI,   PHASE( 4 8)=   38.1DEG.
  4   F/A= .[illegible]   ETAC= [illegible]   TT3= [illegible]   PT5/PT2= 87.4   M2= .332   PSI= 32.75   PCI= 30.59
      [illegible].HZ   A( 4)= .[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   6.1DEG.
      12[illegible].HZ   A( 4)= .[illegible]PSI,   A( 8)= .42[illegible]PSI,   PHASE( 4 8)=   1.5DEG.
      2[illegible].HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   2[illegible].4DEG.
      4[illegible].HZ   A( 4)= .7[illegible]PSI,   A( 8)= .61[illegible]PSI,   PHASE( 4 8)=   40.3DEG.
  5   F/A= .[illegible]   ETAC= [illegible]   TT3= 1534.   PT5/PT2= 60.2   M2= .353   PSI= 30.96   PCI= 29.16
      83.HZ   A( 4)= .[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   3.4DEG.
      12[illegible].HZ   A( 4)= .317[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   4.0DEG.
      2[illegible]3.HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   2[illegible].4DEG.
      4[illegible].HZ   A( 4)= .77[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   4[illegible].5DEG.
  6   F/A=[illegible]   ETAC= [illegible]   TT3= [illegible]3.   PT5/PT2= 8[illegible]   M2= .724   PSI= 14.72   PCI= 15.35
  7   F/A= .[illegible]   ETAC= [illegible]   TT3= [illegible]   PT5/PT2= 37.5   M2= .332   PSI= 32.46   PCI= 30.20
      [illegible]3.HZ   A( 4)= .[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   5.7DEG.
      12[illegible].HZ   A( 4)= .313[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   -2.7DEG.
      12[illegible].HZ   A( 4)= .2[illegible]PSI,   A( 8)= .2[illegible]PSI,   PHASE( 4 8)=   -2.7DEG.
      2[illegible]3.HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   1[illegible].4DEG.
      4[illegible].HZ   A( 4)= .7[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   [illegible]DEG.
  8   F/A= .[illegible]   ETAC= [illegible]   TT3= 2[illegible]   PT5/PT2= [illegible]   M2= .34[illegible]   PSI= 31.31   PCI= 29.30
      [illegible].HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   1[illegible]DEG.
      4[illegible].HZ   A( 4)= .7[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   [illegible].4DEG.
  9   F/A= .[illegible]   ETAC= [illegible]   TT3= 2[illegible]   PT5/PT2= 30.8   M2= .33[illegible]   PSI= 28.71   PCI= 27.15
      [illegible].HZ   A( 4)= [illegible]PSI,   A( 8)= 2.[illegible]PSI,   PHASE( 4 8)=   [illegible]DEG.
      411.HZ   A( 4)= .7[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)=   [illegible]DEG.
 10   F/A= .[illegible]   ETAC= [illegible]   TT3= 2[illegible]   PT5/PT2= 8[illegible].2   M2= .35[illegible]   PSI= 30.16   PCI= 27.[illegible]
      [illegible].HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 3.[illegible]PSI,   PHASE( 4 8)=   1[illegible]DEG.
      4[illegible].HZ   A( 4)= .[illegible]PSI,   A( 8)= .7[illegible]PSI,   PHASE( 4 8)=   4[illegible]DEG.
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6IN.CHAMB.   4IN. INLET   NO FAHREN.   BASELINE    TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  520.   PT5/PT2= 81.8   M2= .719   PSI= 10.39   PCI= 10.99
  2   F/A=0.0000   ETAC=  0.0   TT5F=  970.   PT5/PT2= 81.7   M2= .739   PSI= 14.31   PCI= 15.20
  3   F/A= .0398   ETAC= 30.2   TT5F= 1940.   PT5/PT2= 89.1   M2= .435   PSI= 25.22   PCI= 24.73
  4   F/A= .0358   ETAC= 30.0   TT5F= 1900.   PT5/PT2= 87.2   M2= .444   PSI= 24.61   PCI= 24.21
  5   F/A= .0312   ETAC= 32.1   TT5F= 1710.   PT5/PT2= 88.7   M2= .442   PSI= 24.79   PCI= 24.22
  6   F/A= .0445   ETAC= [illegible]   TT5F= 2358.   PT5/PT2= 90.5   M2= .376   PSI= 27.72   PCI= 26.76
        [illegible].HZ  A( 4)= 1.[illegible]PSI,  A( 8)= 1.211KPSPSI,  PHASE( 4 8)=   8.0DEG.
        153.HZ  A( 4)=  .[illegible]PSI,  A( 8)=  .529KPSPSI,  PHASE( 4 8)=  13.2DEG.
  7   F/A= .0407   ETAC= [illegible]   TT5F= 2472.   PT5/PT2= 89.7   M2= .384   PSI= 28.50   PCI= 27.08
        170.HZ  A( 4)= 1.711[illegible]PSI,  A( 8)= 1.171KPSPSI,  PHASE( 4 8)=  19.0DEG.
  8   F/A= .0347   ETAC= 57.9   TT5F= 2922.   PT5/PT2= 89.5   M2= .391   PSI= 28.01   PCI= 26.51
  9   F/A= .0305   ETAC= 71.[illegible]   TT5F= 2329.   PT5/PT2= 89.9   M2= .403   PSI= 27.08   PCI= 25.48
 10   F/A= .0287   ETAC= 72.[illegible]   TT5F= [illegible]   PT5/PT2= 90.7   M2= .413   PSI= 25.42   PCI= 25.15
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SIN.CHAMB.   [illegible] INLET   [illegible]   TT[illegible]   [illegible] INJ.
  1   F/A=0.0[illegible]  ETAC= [illegible]   TT5F=  743.   PT5/PT2= 60.[illegible]   M2= .702   PSI= 12.39   PCI= 13.35
  2   F/A= .0549   ETAC= 16.[illegible]   TT5F= 1241.   PT5/PT2= 57.3   M2= .453   PSI= 19.74   PCI= 19.62
  3   F/A= .0553   ETAC= 17.7   TT5F= 1314.   PT5/PT2= 57.6   M2= .469   PSI= 19.77   PCI= 19.63
  4   F/A= .0512   ETAC= 1[illegible].3   TT5F= 1317.   PT5/PT2= 57.7   M2= .457   PSI= 19.81   PCI= 19.66
  5   F/A= .0464   ETAC= 22.1   TT5F= 1359.   PT5/PT2= 58.0   M2= .461   PSI= 20.04   PCI= 19.85
  6   F/A= .04[illegible]   ETAC= 2[illegible]   TT5F= 1467.   PT5/PT2= 58.0   M2= .433   PSI= 21.10   PCI= 20.76
  7   F/A= .0373   ETAC= 36.7   TT5F= 1600.   PT5/PT2= 53.7   M2= .415   PSI= 22.15   PCI= 21.61
  8   F/A= .0362   ETAC= 39.[illegible]   TT5F= 1622.   PT5/PT2= 38.0   M2= .407   PSI= 22.52   PCI= 21.78
  9   F/A= .0299   ETAC= 44.[illegible]   TT5F= 1531.   PT5/PT2= 55.7   M2= .425   PSI= 21.74   PCI= 21.04
          158.0HZ  A( 4)= [illegible]PSI   A( 8)= 1.[illegible]PSI
 10   F/A= .0255   ETAC= [illegible]   TT5F= 1516.   PT5/PT2= 5[illegible].0   M2= .436   PSI= 21.19   PCI= 20.36
          17[illegible].HZ  A( 4)= [illegible]PSI,  A( 8)= 1.[illegible]PSI,  PHASE( 4 8)=  1[illegible].5DEG.
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BIN.CHANS.   4IN. INLET   [illegible] F.MODE.   TT[illegible]=1250R   UNIF.INJ.
  1   F/A=[illegible]   ETAC= 0.      TT5F= 1222.   PT5/PT2= 81.0   M2= .714   PSI= 16.81   PCI= 17.53
  2   F/A= .0649     ETAC= 76.[illegible]   TT5F= 3376.   PT5/PT2= 87.7   M2= .345   PSI= 34.69   PCI= 33.19
          225.HZ  A( 4)= [illegible]PSI,  A( 8)= 2.75[illegible]PSI,  PHASE( 4 8)=  22.5DEG.
  3   F/A= .0598     ETAC= 76.[illegible]   TT5F= 3352.   PT5/PT2= 9[illegible].2   M2= .357   PSI= 34.07   PCI= 32.89
          228.HZ  A( 4)= 1.25[illegible]PSI,  A( 8)= 1.41[illegible]PSI,  PHASE( 4 8)=  25.9DEG.
  4   F/A= .0563     ETAC= 76.[illegible]   TT5F= 3262.   PT5/PT2= 90.3   M2= .366   PSI= 33.30   PCI= 32.34
           53.HZ  A( 4)=  .43[illegible]PSI,  A( 8)= .373[illegible]PSI,  PHASE( 4 8)=   5.0DEG.
  5   F/A= .0507     ETAC= 74.4    TT5F= 3256.   PT5/PT2= 90.5   M2= .373   PSI= 33.03   PCI= 32.02
  6   F/A= .0457     ETAC= 74.[illegible]   TT5F= 3123.   PT5/PT2= 90.6   M2= .382   PSI= 31.87   PCI= 30.94
           53.HZ  A( 4)=  .772[illegible]PSI,  A( 8)= .703[illegible]PSI,  PHASE( 4 8)=   7.9DEG.
  7   F/A= .0405     ETAC= 71.[illegible]   TT5F= 2891.   PT5/PT2= 9[illegible].2   M2= .404   PSI= 30.33   PCI= 29.37
           53.HZ  A( 4)=  .214[illegible]PSI,  A( 8)= .2[illegible]PSI,  PHASE( 4 8)=   5.3DEG.
          155.HZ  A( 4)=  .40[illegible]PSI,  A( 8)= .413[illegible]PSI,  PHASE( 4 8)=   9.4DEG.
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6IN.CHAMB.   4IN. INLET   [illegible]   TT [illegible]   [illegible] INJ.
 1   F/A=[illegible]   ETAC= [illegible]   TT5F= 1223.   PT5/PT2= 31.1   M2= .715   PSI= 16.95   PCI= 17.62
 2   F/A= .0030   ETAC= 50.[illegible]   TT5F= 2765.   PT5/PT2= [illegible].3   M2= .402   PSI= 30.65   PCI= 30.13
          133.HZ   A( 4)= [illegible]PSI,   A( 8)= [illegible]PSI,   PHASE( 4 8)= [illegible]DEG.
 3   F/A= .0362   ETAC= 56.[illegible]   TT5F= 2771.   PT5/PT2= 9[illegible].7   M2= .367   PSI= 31.56   PCI= 30.71
          13[illegible].HZ   A( 4)= 1.52[illegible]PSI,   A( 8)= [illegible]PSI,   PHASE( 4 8)= 11.40DEG.
 4   F/A= .0346   ETAC= 64.[illegible]   TT5F= 3[illegible]70.   PT5/PT2= 90.4   M2= .333   PSI= 32.22   PCI= 30.90
          134.HZ   A( 4)= 1.557[illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 4 8)= 10.90DEG.
          14[illegible].HZ   A( 4)= 1.151[illegible]PSI,   A( 8)= .17[illegible]PSI,   PHASE( 4 8)= 8.40DEG.
          224.HZ   A( 4)= 1.[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)= 15.00DEG.
          213.HZ   A( 4)= .[illegible]PSI,   A( 8)= .[illegible]PSI,   PHASE( 4 8)= 22.60DEG.
 5   F/A= .0513   ETAC= 58.[illegible]   TT5F= 3111.   PT5/PT2= 87.0   M2= .375   PSI= 32.52   PCI= 30.85
          145.HZ   A( 4)= .[illegible]PSI,   A( 8)= .575[illegible]PSI,   PHASE( 4 8)= 10.50DEG.
          218.HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 2.[illegible]PSI,   PHASE( 4 8)= 25.70DEG.
 6   F/A= .0455   ETAC= 70.[illegible]   TT5F= 3[illegible]07.   PT5/PT2= [illegible].4   M2= .372   PSI= 31.35   PCI= 30.02
          22[illegible].HZ   A( 4)= 1.[illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 4 8)= 27.[illegible]DEG.
 7   F/A= .0402   ETAC= 76.[illegible]   TT5F= 2861.   PT5/PT2= 87.[illegible]   M2= .407   PSI= 30.42   PCI= 29.20
 8   F/A= .0343   ETAC= 75.1   TT5F= 2746.   PT5/PT2= [illegible].0   M2= .413   PSI= 27.40   PCI= 28.59
 9   F/A= .0304   ETAC= 74.[illegible]   TT5F= 2563.   PT5/PT2= 86.0   M2= .434   PSI= 28.20   PCI= 27.54
10   F/A= .[illegible]274   ETAC= 74.[illegible]   TT5F= 2354.   PT5/PT2= 37.5   M2= .455   PSI= 25.[illegible]7   PCI= 26.73
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6IN.CHAMB.    9IN. INLET    9IN F.HOLD.    9.4 NOZ.      UNIF.INJ.
   1     F/A=0.0000     ETAC=  0.        TT5F=   535.     PT5/PT2= 87.7     M2= .557     PSI= 11.29     PCI= 12.02
   2     F/A=0.0000     ETAC=  0.0       TT5F=   782.     PT5/PT2= 97.6     M2= .575     PSI= 15.07     PCI= 16.07
   3     F/A= .0075     ETAC= 1[illegible]   TT5F=  3027.     PT5/PT2= 94.1     M2= .267     PSI= 32.87     PCI= 32.60
              125.HZ   A( 4)= 5.250-05PSI.   A( 8)= 2.759E-05PSI.   PHASE( 4 8)=     5.60EG.
             250.0HZ   A( 4)=  .5935-05PSI.  A( 8)=  .3259E-05PSI
   4     F/A= .0064     ETAC= 36.3       TT5F=  2763.     PT5/PT2= 93.3     M2= .244     PSI= 31.15     PCI= 30.93
              124.HZ   A( 4)= 3.[illegible]-05PSI.  A( 8)= 1.773E-05PSI.   PHASE( 4 8)=     5.70EG.
             257.5HZ   A( 4)=  .41[illegible]-05PSI   A( 8)=  .25[illegible]-05PSI
              171.HZ   A( 4)=  .730[illegible]-05PSI.  A( 8)=  .144E-05PSI.   PHASE( 4 8)=    15.20EG.
   5     F/A= .0560     ETAC= 54.9       TT5F=  2651.     PT5/PT2= 93.6     M2= .293     PSI= 30.44     PCI= 29.85
              133.HZ   A( 4)= 2.31[illegible]-05PSI.  A( 8)= 1.154E-05PSI.   PHASE( 4 8)=     4.00EG.
   6     F/A= .0512     ETAC= 45.3       TT5F=  2296.     PT5/PT2= 92.7     M2= .313     PSI= 27.91     PCI= 27.5[illegible]
               71.HZ   A( 4)= 1.003E-05PSI.   A( 8)=  .[illegible]E-05PSI.   PHASE( 4 8)=    -3.40EG.
              112.HZ   A( 4)= 1.461E-05PSI.   A( 8)=  .[illegible]E-05PSI.   PHASE( 4 8)=     6.90EG.
              141.HZ   A( 4)= 1.973E-05PSI.   A( 8)=  .557E-05PSI.   PHASE( 4 8)=    17.60EG.
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SIN.CHAMB.   4IN. INLET   NO FLAMEHLD.   [illegible] NOZ.   TUBE INJ.
  1   F/A= .0435   ETAC= 95.4   TT5F= 2394.   PT5/PT2= 93.1   M2= .314   PSI= 28.23   PCI= 27.58
            124.HZ  A( 4)= [illegible]RMSPSI,  A( 8)= .72[illegible]RMSPSI,  PHASE( 4 8)=   8.7DEG.
  2   F/A= .0410   ETAC= 73.1   TT5F= 2756.   PT5/PT2= 93.8   M2= .293   PSI= 30.23   PCI= 29.64
            126.HZ  A( 4)= 2.[illegible]RMSPSI,  A( 8)= 1.49RMSPSI,  PHASE( 4 8)=  15.8DEG.
  3   F/A= .0343   ETAC= 74.3   TT5F= 2548.   PT5/PT2= 93.3   M2= .307   PSI= 29.02   PCI= 28.55
  4   F/A= .0306   ETAC= [illegible]   TT5F= 2263.   PT5/PT2= 92.9   M2= .33[illegible]   PSI= 25.93   PCI= 26.34
            150.HZ  A( 4)= 2.2[illegible]RMSPSI,  A( 8)= .73[illegible]RMSPSI,  PHASE( 4 8)=  21.1DEG.
  5   F/A= .0256   ETAC= [illegible]   TT5F= 2[illegible].   PT5/PT2= 93.0   M2= .347   PSI= 25.53   PCI= 25.05
            149.HZ  A( 4)= 2.3[illegible]RMSPSI,  A( 4)= .77[illegible]RMSPSI,  PHASE( 4 8)=  22.2DEG.
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6IN.CHAM3.    4IN. INLET    NO [illegible]    5[illegible] NOZ.    UNIF.INJ.
  1   F/A=0.0000    ETAC=  0.0    TT5F=  [illegible]0.    PT5/PT2= 70.3    M2= .769    PSI= 16.56    PCI= 13.66
  2   F/A= .0[illegible]41    ETAC= [illegible]    TT5F= 2293.    PT5/PT2= 36.9    M2= .475    PSI= 27.78    PCI= 26.90
          44.HZ  A( 4)= [illegible]PSI,  A( 8)= [illegible]RMSPSI,  PHASE( 4 8)=  [illegible]
  3   F/A= .0[illegible]    ETAC= [illegible]    TT5F= 27[illegible].    PT5/PT2= 55.9    M2= .413    PSI= 32.19    PCI= 29.94
         2[illegible]9.HZ  A( 4)= 1.63[illegible]PSI,  A( 8)= .0[illegible]RMSPSI,  PHASE( 4 8)=  20.10[illegible]
  4   F/A= .0543    ETAC= 57.1    TT5F= 2984.    PT5/PT2= 57.7    M2= .437    PSI= 32.[illegible]    PCI= 30.23
         209.HZ  A( 4)= [illegible]PSI,  A( 8)= 1.[illegible]RMSPSI,  PHASE( 4 8)=  1[illegible]
  5   F/A= .0498    ETAC= 53.6    TT5F= 2[illegible]2.    PT5/PT2= 55.0    M2= .43[illegible]    PSI= 3[illegible]    PCI= 28.93
          48.HZ  A( 4)= [illegible]PSI,  A( 8)= .735RMSPSI,  PHASE( 4 8)=  [illegible]
          95.HZ  A( 4)= [illegible]PSI,  A( 8)= .[illegible]RMSPSI,  PHASE( 4 8)=  1[illegible]
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                                                          [illegible]IN.
6IN.CHAMB.   4IN. INLET   [illegible] F.M.   [illegible]   PT5/PT2= 63.3   M2= .47[illegible]   PSI= 22.67   PCI= 16.0[illegible]
  1   F/A=0.0[illegible]   ETAC= [illegible]   TT5= 97[illegible].   PT5/PT2= 36.1   M2= .27[illegible]   PSI= 39.45   PCI= 34.0[illegible]
  2   F/A= .[illegible]41   ETAC= [illegible]   TT5= [illegible]
        2[illegible].HZ   A( 4)= [illegible].31[illegible]PSI.   A( 8)= [illegible]PSI.   PHASE( 4 8)=   13.1DEG.
        4[illegible].HZ   A( 4)= 1.7[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   4[illegible].40EG.
                                    PT5/PT2= 56.0   M2= .2[illegible]   PSI= 38.50   PCI= 33.4[illegible]
  3   F/A= .[illegible]   TAC= [illegible]2.3   TT5= 3[illegible]3[illegible].
        23[illegible].HZ   A( 4)= [illegible]PSI.   A( 8)= [illegible]PSI.   PHASE( 4 8)=   [illegible]4.70EG.
        459.HZ   A( 4)= 1.[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   4[illegible].3DEG.
                                    PT5/PT2= [illegible]   M2= .29[illegible]   PSI= 37.66   PCI= 32.[illegible]
  4   F/A= .[illegible]59   ETAC= [illegible]   TT5= [illegible]7.
        23[illegible].HZ   A( 4)= [illegible].[illegible]PSI.   A( 8)= 5.3[illegible]MSPSI.   PHASE( 4 8)=   1[illegible].1DEG.
        459.HZ   A( 4)= [illegible]PSI.   A( 8)= 1.1[illegible]PSI.   PHASE( 4 8)=   44.[illegible]DEG.
                                    PT5/PT2= 35.[illegible]   M2= .30[illegible]   PSI= 36.18   PCI= 31.4[illegible]
  5   F/A= .0[illegible]   ETAC= 76.[illegible]   TT5= 3[illegible]1.
        22[illegible].HZ   A( 4)= [illegible].85[illegible]PSI.   A( 8)= [illegible]PSI.   PHASE( 4 8)=   1[illegible].1DEG.
        455.HZ   A( 4)= 1.[illegible]PSI.   A( 8)= [illegible]PSI.   PHASE( 4 8)=   43.30EG.
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BIN.CHAMB.   [illegible]   [illegible]   [illegible]   [illegible]
 1   F/A=[illegible]   ETAC= [illegible]   TT5= 527.    PT5/PT2= 65.1   M2= .467   PSI= 19.33   PCI= 11.51
 2   F/A=[illegible]   ETAC= [illegible]   TT5= 965.    PT5/PT2= 62.7   M2= .474   PSI= 22.57   PCI= 15.85
 3   F/A= .[illegible]   ETAC= 93.   TT5= 3622.   PT5/PT2= 35.5   M2= .361   PSI= 36.34   PCI= 30.40
       219.HZ   AT( 4)= [illegible]PSI.   AT( 8)= [illegible]PSI.   PHASE( 4 8)=  17.902G.
 4   F/A= .[illegible]1   ETAC= [illegible]   TT5  3626.   PT5/PT2= 33.5   M2= .365   PSI= 35.76   PCI= 30.25
       22[illegible].HZ   AT( 4)= [illegible]PSI.   AT( 8)= 4.716E[illegible]PSI.   PHASE( 4 8)=  1[illegible]G.
       44[illegible].HZ   AT( 4)= [illegible]PSI   AT( 8)= .734E[illegible]PSI
 5   F/A= .[illegible]   ETAC= [illegible]   TT[illegible] 29[illegible]   PT5/PT2= 53.2   M2= .3[illegible]   PSI= 35.47   PCI= 29.9
       22[illegible].HZ   AT( 4)= [illegible]PSI.   AT( 8)= 4.[illegible]PSI.   PHASE( 4 8)=  1[illegible]G.
       44[illegible].HZ   AT( 4)= [illegible]PSI   AT( 8)= .7[illegible]PSI
 6   F/A= .[illegible]   ETAC= [illegible]   TT5= [illegible]   PT5/PT2= 83.2   M2= .313   PSI= 34.74   PCI= 27.5[illegible]
       21[illegible].HZ   AT( 4)= [illegible]PSI.   AT( 8)= 4.[illegible]PSI.   PHASE( 4 8)=  1[illegible].70[illegible]G.
       433.[illegible]HZ   AT( 4)= 1.1[illegible]PSI   AT( 8)= .7[illegible]PSI
 7   F/A= .[illegible]   ETAC= 7[illegible]   TT[illegible]  2[illegible]3[illegible].   PT5/PT2= 4[illegible]   M2= .32[illegible]   PSI= 34.[illegible]   PCI= 28.8[illegible]
       213.HZ   AT( 4)= [illegible]PSI.   AT( 8)= 4.3[illegible]PSI.   PHASE( 4 8)=  21.[illegible]G.
       4[illegible].HZ   AT( 4)= 1.[illegible]PSI.   AT( 8)= [illegible]PSI.   PHASE( 4 8)=  47.2[illegible]G.
 8   F/A= .[illegible]   ETAC= 7[illegible]   TT[illegible]   PT5/PT2= 32.2   M2= .32[illegible]   PSI= 33.37   PCI= 28.3[illegible]
       213.HZ   AT( 4)= [illegible]PSI.   AT( 8)= 3.[illegible]PSI.   PHASE( 4 8)=  [illegible]3.10[illegible]G.
       4[illegible].HZ   AT( 4)= [illegible]PSI.   AT( 8)= [illegible]PSI.   PHASE( 4 8)=  [illegible]G.
 9   F/A= .[illegible]   ETAC= 7[illegible]   TT5= [illegible]51.   PT5/PT2= 33.3   M2= .3[illegible]   PSI= 31.[illegible]   PCI= 27.6[illegible]
       [illegible]14.HZ   AT( 4)= [illegible]PSI.   AT( 8)= 1.[illegible]PSI.   PHASE( 4 8)=  2[illegible]G.
10   F/A= .[illegible]312   ETAC= 75.   TT5= 2[illegible]   PT5/PT2= 92.6   M2= .355   PSI= 3[illegible]   PCI= 26.8
11   F/A= .[illegible]   ETAC= [illegible]1.   TT[illegible]  [illegible]   PT5/PT2= 92.1   M2= .305   PSI= [illegible]   PCI= 25.9
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6IN.CHAMB.   4IN. INLET   .25F F.M.    TT2=750R     TUBE INJ.
   1    F/A= .0502    ETAC= 42.      TT5F= 1991.    PT5/PT2= 82.0     M2= .327    PSI= 28.61    PCI= 24.62
              175.HZ  A( 4)= 5.3E+05PSI.  A( 5)= 2.12E+05PSI.  PHASE( 4 5)=   18.4DEG.
   2    F/A= .0449    ETAC= 44.3     TT5F= 1933.    PT5/PT2= 82.3     M2= .365    PSI= 28.03    PCI= 24.32
   3    F/A= .0415    ETAC= 45.4     TT5F= 1842.    PT5/PT2= 82.0     M2= .348    PSI= 27.28    PCI= 23.82
   4    F/A= .0352    ETAC= 36.1     TT5F= 1543.    PT5/PT2= 79.8     M2= .377    PSI= 24.84    PCI= 21.35
   5    F/A= .0312    ETAC= 32.1     TT5F= 1345.    PT5/PT2= 77.4     M2= .403    PSI= 23.20    PCI= 19.34
   6    F/A= .0261    ETAC=  4.9     TT5F=  837.    PT5/PT2= 63.6     M2= .464    PSI= 20.00    PCI= 14.27
   7    F/A= .0265    ETAC=  4.7     TT5F=  835.    PT5/PT2= 63.3     M2= .464    PSI= 20.10    PCI= 14.18
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6IN.CHAMB.   4IN. INLET   .25Y [illegible]   [illegible] FLOW   UNIF.INJ.
   1   F/A=[illegible]   ETAC= [illegible]   TTDF=  972.   PT5/PT2= 62.8   M2= .475   PSI= 13.98   PCI=  9.85
   2   F/A= .0035   ETAC= 7[illegible].1   TTDF= 3415.   PT5/PT2= 94.6   M2= .2[illegible]   PSI= 23.55   PCI= 20.11
        229.HZ   A( 4)= [illegible]PSI.   A( 8)= 1.2[illegible]PSI.   PHASE( 4 8)=   16.[illegible]DEG.
        456.HZ   A( 4)= 1.7[illegible]PSI.   A( 8)= 1.1[illegible]PSI.   PHASE( 4 8)=   3[illegible].1DEG.
   3   F/A= .0581   ETAC= 75.7   TT[illegible] 3353.   PT5/PT2= 94.0   M2= .292   PSI= 23.07   PCI= 19.84
        22[illegible].HZ   A( 4)= 3.037[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   1[illegible].90.DEG.
        459.HZ   A( 4)= 1.[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   39.8DEG.
   4   F/A= .[illegible]47   ETAC= 79.[illegible]   TT[illegible] 3213.   PT5/PT2= 84.3   M2= .301   PSI= 22.6[illegible]   PCI= 19.50
        226.HZ   A( 4)= 3.75[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   19.[illegible]DEG.
        459.HZ   A( 4)= 1.72[illegible]PSI.   A( 8)= 1.1[illegible]PSI.   PHASE( 4 8)=   47.0DEG.
   5   F/A= .0497   ETAC= 7[illegible].5   TT[illegible] 2992.   PT5/PT2= 33.[illegible]   M2= .31[illegible]   PSI= 21.9[illegible]   PCI= 18.66
        225.HZ   A( 4)= 3.8[illegible]PSI.   A( 8)= 1.[illegible]PSI.   PHASE( 4 8)=   21.20DEG.
        455.HZ   A( 4)= 1.034[illegible]PSI.   A( 8)= .[illegible]PSI.   PHASE( 4 8)=   [illegible].70DEG.
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6IN.CHAMB.    4IN. INLET    .2[illegible]Y [illegible]    [illegible] FLOW    [illegible] INJ.
  1     F/A=0.[illegible]     [illegible]TAU=  [illegible].     TT5F= 1[illegible]7.     PT5/PT2= [illegible].6     M2= .47[illegible]     PSI= 13.[illegible]     PCI=  9.89
  2     F/A= .[illegible]11     [illegible]TAU= [illegible]     TT5F= [illegible]71[illegible].     PT5/PT2= [illegible]     M2= .3[illegible]     PSI= 20.6[illegible]     PCI= 17.60
           204.HZ   A( 4)= [illegible]PSI.   A( 3)= .[illegible]PSI.   PHASE( 4 3)=   23.7[illegible]G.
           [illegible] 6.HZ   A( 4)=  .[illegible]PSI.   A( [illegible])= .152[illegible]PSI.   PHASE( 4 6)=   41.7DEG.
  3     F/A= .[illegible]4[illegible]     [illegible]TAU= [illegible]2.4     TT5F= 2[illegible].     PT5/PT2= [illegible]2.[illegible]     M2= .331     PSI= 2[illegible].[illegible]     PCI= 17.21
           2[illegible]3.HZ   A( 4)= [illegible].62[illegible]MSPSI.   A( 5)= .7[illegible]PSI.   PHASE( 4 3)=   25.3DEG.
           4[illegible]5.HZ   A( 4)=  .[illegible]MSPSI.   A( 6)= .1[illegible]PSI.   PHASE( 4 3)=   4[illegible].2DEG.
  4     F/A= .[illegible]2     [illegible]TAU= [illegible]3.3     TT5F= 25[illegible].     PT5/PT2= 3[illegible].5     M2= .34[illegible]     PSI= 1[illegible].[illegible]     PCI= 16.60
  5     F/A= .[illegible]344     [illegible]TAU= [illegible].1     TT5F= 2342.     PT5/PT2= 31.6     M2= .357     PSI= 1[illegible].23     PCI= 15.80
  6     F/A= .0314     [illegible]TAU= [illegible]     TT5F= [illegible]1[illegible].     PT5/PT2= 3[illegible].5     M2= .3[illegible]     PSI= 17.[illegible]     PCI= 15.19
  7     F/A= .[illegible]262     [illegible]TAU= [illegible]     TT5F= 1[illegible]7.     PT5/PT2= 77.9     M2= .40[illegible]     PSI= 16.37     PCI= 13.81
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6IN.CHAMB.   4IN. INLET   .25[illegible] F.H.   4.[illegible] 50Z.   UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  993.   PT5/PT2= 75.3   M2= .444   PSI= 17.90   PCI= 16.78
  2   F/A= .0266   ETAC= 67.[illegible]   TT5F= 3761.   PT5/PT2= 97.1   M2= .21[illegible]   PSI= 37.82   PCI= 35.21
          221.HZ  A( 4)= 7.22[illegible]E-05PSI,  A( 8)= 3.17[illegible]E-05PSI,  PHASE( 4 8)=  11.70[illegible]G.
        442.5HZ  A( 4)= 1.711E-05PSI   A( 8)=  .59[illegible]E-05PSI
  3   F/A= .0[illegible]   ETAC= 56.[illegible]   TT5F= 3[illegible]97.   PT5/PT2= 89.2   M2= .22[illegible]   PSI= 3[illegible].1[illegible]   PCI= 34.69
          215.HZ  A( 4)= [illegible]E-05PSI,  A( 8)= 2.52[illegible]E-05PSI,  PHASE( 4 8)=  12.[illegible]G.
        430.3HZ  A( 4)= 1.47[illegible]E-05PSI   A( 8)=  .[illegible]E-05PSI
  4   F/A= .0[illegible]   ETAC= [illegible]3.   TT5F= 3[illegible]56.   PT5/PT2= 90.0   M2= .233   PSI= 37.77   PCI= 33.34
          21[illegible].HZ  A( 4)= [illegible]87E-05PSI,  A( 8)= 3.421E-05PSI,  PHASE( 4 8)=  12.29[illegible]G.
        430.3HZ  A( 4)= 1.0[illegible]E-05PSI   A( 8)=  .[illegible]7[illegible]E-05PSI
  5   F/A= .0522   ETAC= 34.1   TT5F= 34[illegible]3.   PT5/PT2= 37.6   M2= .236   PSI= 37.2[illegible]   PCI= 32.70
          219.HZ  A( 4)= 5.072E-05PSI,  A( 8)= 3.[illegible]7[illegible]E-05PSI,  PHASE( 4 8)=  13.90[illegible]G.
        439.3HZ  A( 4)= 1.093E-05PSI   A( 8)=  .[illegible]7[illegible]E-05PSI
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6IN.CHAMB.   4IN. INLET   .22T F.H.   [illegible] NOZ.   [illegible] INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  547.   PT5/PT2= 75.3   M2= .434   PSI= 14.54   PCI= 12.26
  2   F/A=0.0000   ETAC=  0.0   TT5F=  552.   PT5/PT2= 74.9   M2= .450   PSI= 17.71   PCI= 16.72
  3   F/A= .0631   ETAC= 55.6   TT5F= 3[illegible].   PT5/PT2= 90.0   M2= .250   PSI= 34.81   PCI= 31.83
  4   F/A= .0548   ETAC= 54.7   TT5F= 3[illegible].   PT5/PT2= 87.7   M2= .261   PSI= 34.74   PCI= 31.58
  5   F/A= .0[illegible]42   ETAC= 57.[illegible]   TT5F= 2475.   PT5/PT2= 88.0   M2= .257   PSI= 34.70   PCI= 31.44
          208.HZ   A( 4)=  .693[illegible]PSI,   A( 8)=  .524[illegible]PSI,   PHASE( 4 8)=   9.2DEG.
  6   F/A= .0[illegible]   ETAC= [illegible]   TT5F= 2[illegible]57.   PT5/PT2= 87.9   M2= .257   PSI= 34.74   PCI= 31.23
          209.HZ   A( 4)= 3.[illegible]PSI,   A( 8)= 1.[illegible]PSI,   PHASE( 4 8)=  1[illegible].5DEG.
         416.3HZ   A( 4)=  .9[illegible]PSI   A( 8)=  .441[illegible]PSI
  7   F/A= .0423   ETAC= 73.6   TT5F= 2504.   PT5/PT2= 87.7   M2= .267   PSI= 33.58   PCI= 30.14
          209.HZ   A( 4)= 4.162[illegible]PSI,   A( 8)= 2.133[illegible]PSI,   PHASE( 4 8)=  21.5DEG.
         417.5HZ   A( 4)= 1.19[illegible]PSI   A( 8)=  .45[illegible]PSI
  8   F/A= .0397   ETAC= 75.5   TT5F= 2757.   PT5/PT2= 87.6   M2= .271   PSI= 33.13   PCI= 29.80
          208.HZ   A( 4)= 3.652[illegible]PSI,   A( 8)= 1.711[illegible]PSI,   PHASE( 4 8)=  21.9DEG.
         416.3HZ   A( 4)= 1.179[illegible]PSI   A( 8)=  .411[illegible]PSI
  9   F/A= .0355   ETAC= 75.5   TT5F= 2[illegible].   PT5/PT2= 88.3   M2= .282   PSI= 31.55   PCI= 28.83
          199.HZ   A( 4)= 2.944[illegible]PSI,   A( 8)= 1.153[illegible]PSI,   PHASE( 4 8)=  22.1DEG.
         337.5HZ   A( 4)=  .576[illegible]PSI   A( 8)=  .[illegible]PSI
 10   F/A= .0273   ETAC= 43.8   TT5F= 2515.   PT5/PT2= 87.1   M2= .295   PSI= 30.48   PCI= 27.90
 11   F/A= .0254   ETAC= 41.5   TT5F= 2321.   PT5/PT2= 87.3   M2= .305   PSI= 27.43   PCI= 27.00
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6IN.CHAMB.   4IN. INLET   .25Y F[illegible]   9[illegible] NOZ.   UNIF.INJ.
  1   F/A=0.0000   ETAC=  [illegible]   TT5F=   535.   PT5/PT2= 52.9   M2= .456   PSI= 19.57   PCI= 10.79
  2   F/A=0.0000   ETAC=  [illegible]   TT5F=   [illegible]   PT5/PT2= 52.5   M2= .481   PSI= 27.20   PCI= 14.87
  3   F/A= .0650   ETAC= [illegible]1.7   TT5F= 3645.   PT5/PT2= 32.5   M2= .326   PSI= 40.26   PCI= 34.28
        275.HZ  A( 4)= 3.930[illegible]MSPSI,  A( 8)= 1.2[illegible]MSPSI,  PHASE( 4 8)=  21.6DEG.
  4   F/A= .0596   ETAC= 80.4   TT5F= 3497.   PT5/PT2= 42.0   M2= .336   PSI= 39.39   PCI= 33.64
        276.HZ  A( 4)= [illegible]MSPSI,  A( 8)= 1.[illegible]03RMSPSI,  PHASE( 4 8)=  23.9DEG.
  5   F/A= .0544   ETAC= [illegible]4.5   TT5F= 3499.   PT5/PT2= 42.4   M2= .341   PSI= 33.85   PCI= 33.24
        280.HZ  A( 4)=  .[illegible]14[illegible]SPSI,  A( 8)=  .279RMSPSI,  PHASE( 4 8)=  15.6DEG.
  6   F/A= .0500   ETAC= 32.3   TT5F= 3283.   PT5/PT2= 31.3   M2= .349   PSI= 37.41   PCI= 32.01
        285.HZ  A( 4)=  .7[illegible]SPSI,  A( 8)=  .247RMSPSI,  PHASE( 4 8)=  17.7DEG.
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RIN.CHAM1.    4IN. INLET    .33Y F.H.    BASELINE    FUAL INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  547.   PT5/PT2= 54.8   M2= .367   PSI= 25.74   PCI= 12.12
  2   F/A=0.0[illegible]   ETAC= [illegible]   TT5F=  967.   PT5/PT2= 54.4   M2= .397   PSI= 27.70   PCI= 16.13
  3   F/A= .0[illegible]34   ETAC= [illegible]   TT5F= 3103.   PT5/PT2= 79.6   M2= .282   PSI= 38.74   PCI= 31.33
         220.HZ   A( 4)= 5.[illegible]RMSPSI,   A( 8)= 3.[illegible]7RMSPSI,   PHASE( 4 8)=   20.3DEG.
         437.HZ   A( 4)= 1.[illegible]RMSPSI,   A( 8)=  .[illegible]RMSPSI,   PHASE( 4 8)=   31.3DEG.
  4   F/A= .0594   ETAC= [illegible]   TT5F= 3121.   PT5/PT2= 79.6   M2= .283   PSI= 38.71   PCI= 31.27
         221.HZ   A( 4)= [illegible]RMSPSI,   A( 8)= 2.[illegible]RMSPSI,   PHASE( 4 8)=   22.1DEG.
         442.HZ   A( 4)= 1.[illegible]RMSPSI,   A( 8)=  .[illegible]RMSPSI,   PHASE( 4 8)=   36.1DEG.
  5   F/A= .0550   ETAC= 70.[illegible]   TT5F= 30[illegible].   PT5/PT2= 79.3   M2= .287   PSI= 33.24   PCI= 30.96
         220.HZ   A( 4)= 5.91[illegible]RMSPSI,   A( 8)= 2.951RMSPSI,   PHASE( 4 8)=   23.4DEG.
         440.HZ   A( 4)= 2.137[illegible]RMSPSI,   A( 8)=  .[illegible]RMSPSI,   PHASE( 4 8)=   35.3DEG.
  6   F/A= .0508   ETAC= 71.[illegible]   TT5F= 3[illegible].   PT5/PT2= 79.6   M2= .295   PSI= 37.23   PCI= 30.56
         219.HZ   A( 4)= 4.385RMSPSI,   A( 8)= 2.[illegible]RMSPSI,   PHASE( 4 8)=   23.7DEG.
         474.HZ   A( 4)=  .73[illegible]RMSPSI,   A( 8)=  .[illegible]RMSPSI,   PHASE( 4 8)=   35.9DEG.
  7   F/A= .0470   ETAC= 72.[illegible]   TT5F= 2934.   PT5/PT2= 80.5   M2= .303   PSI= 35.89   PCI= 29.74
         214.HZ   A( 4)= 1.273[illegible]RMSPSI,   A( 8)=  .[illegible]75RMSPSI,   PHASE( 4 8)=   21.5DEG.
  8   F/A= .0411   ETAC= 72.5   TT5F= 2744.   PT5/PT2= 79.5   M2= .313   PSI= 34.96   PCI= 28.67
  9   F/A= .0345   ETAC= 34.[illegible]   TT5F= 2740.   PT5/PT2= 79.4   M2= .314   PSI= 34.99   PCI= 28.59
 10   F/A= .0312   ETAC= 33.[illegible]   TT5F= 2517.   PT5/PT2= 78.7   M2= .322   PSI= 34.04   PCI= 27.62
 11   F/A= .0254   ETAC= 33.6   TT5F= 2320.   PT5/PT2= 76.9   M2= .333   PSI= 32.40   PCI= 25.76
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6IN.CHAMB.   4IN. INLET   .33Y F.H.    TTC=750K     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5I=  728.    PT5/PT2= 54.4    M2= .393    PSI= 23.89    PCI= 13.92
   2    F/A= .0041    ETAC= 52.6    TT5F= 2055.    PT5/PT2= 32.7    M2= .264    PSI= 35.91    PCI= 30.64
            145.HZ  A( 4)= 4.161RMSPSI,  A( 8)= 1.5945RMSPSI,  PHASE( 4 8)=  14.6DEG.
            396.HZ  A( 4)=  .6055RMSPSI,  A( 8)=  .2168RMSPSI,  PHASE( 4 8)=  23.1DEG.
   3    F/A= .0593     ETAC= 55.5    TT5F= 2677.    PT5/PT2= 83.3    M2= .266    PSI= 35.48    PCI= 30.59
   4    F/A= .0558     ETAC= 62.5    TT5F= 2698.    PT5/PT2= 82.7    M2= .276    PSI= 34.13    PCI= 29.28
            144.HZ  A( 4)= 1.16[illegible]RMSPSI,  A( 4)=  .470RMSPSI,  PHASE( 4 8)=  11.1DEG.
   5    F/A= .0505     ETAC= 54.1    TT5F= 2323.    PT5/PT2= 81.0    M2= .295    PSI= 32.04    PCI= 27.17
            205.HZ  A( 4)=  .[illegible]RMSPSI,  A( 8)=  .3478RMSPSI,  PHASE( 4 8)=   9.0DEG.
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6IN.CHAM?.   4IN. INLET   .33Y F.M.   [illegible] FLOW   TUBE INJ.
  1   F/A=[illegible]   ETAC= [illegible]   TT5F= 993.   PT5/PT2= 55.6   M2= .392   PSI= 16.73   PCI= 10.01
  2   F/A= .0641   ETAC= [illegible]   TT5F= 2796.   PT5/PT2= 78.4   M2= .296   PSI= 22.16   PCI= 18.18
         2[illegible].HZ   A( 4)= [illegible]PSI,   A( 8)= .650[illegible]PSI,   PHASE( 4 8)=  2[illegible]DEG.
         413.HZ   A( 4)= [illegible]PSI,   A( 8)= .0[illegible]PSI,   PHASE( 4 8)=  33.5DEG.
  3   F/A= .0[illegible]   ETAC= [illegible]   TT5F= 2761.   PT5/PT2= 76.8   M2= .30[illegible]   PSI= 21.85   PCI= 18.17
         2[illegible].HZ   A( 4)= [illegible]PSI,   A( 8)= .4[illegible]PSI,   PHASE( 4 8)=  21.[illegible]DEG.
         413.HZ   A( 4)= .31[illegible]PSI,   A( 8)= [illegible]PSI,   PHASE( 4 8)=  3[illegible]DEG.
  4   F/A= .0[illegible]   ETAC= 98.[illegible]   TT5F= 2674.   PT5/PT2= 76.7   M2= .3[illegible]   PSI= 21.41   PCI= 17.88
         205.HZ   A( 4)= .52[illegible]PSI,   A( 8)= .1[illegible]PSI,   PHASE( 4 8)=  17.2DEG.
         [illegible].HZ   A( 4)= .4[illegible]PSI,   A( 8)= [illegible]PSI,   PHASE( 4 8)=  23.1DEG.
  5   F/A= .0516   ETAC= [illegible]   TT5F= 2477.   PT5/PT2= 77.9   M2= .32[illegible]   PSI= 20.66   PCI= 17.19
  6   F/A= .0499   ETAC= 47.[illegible]   TT5F= 2228.   PT5/PT2= 76.3   M2= .335   PSI= 17.75   PCI= 16.09
  7   F/A= .04[illegible]   ETAC= 4[illegible]   TT5F= 2014.   PT5/PT2= 74.3   M2= .347   PSI= 18.84   PCI= 15.02
  8   F/A= .0359   ETAC= 35.[illegible]   TT5F= 1766.   PT5/PT2= 71.4   M2= .362   PSI= 18.06   PCI= 13.89
  9   F/A= .0[illegible]   ETAC= [illegible]   TT5F= 1519.   PT5/PT2= 54.6   M2= .34[illegible]   PSI= 16.84   PCI= 10.13
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6IN.CHAM.    4IN. INLET    .397 FAN.    4.4 .02.    0.11.193.
  1    F/A=0.0000    ETAC= 0.    TT5F=  553.    PT5/PT2= 66.9    M2= .377    PSI= 17.07    PCI= 12.47
  2    F/A=0.0000    ETAC= 0.    TT5F=  474.    PT5/PT2= 66.8    M2= .387    PSI= 22.86    PCI= 16.56
  3    F/A= .0046    ETAC= 17.4    TT5F= 3005.    PT5/PT2= 66.3    M2= .215    PSI= 40.53    PCI= 36.13
          223.HZ  A( 4)= .0294 PSI.  A( 8)= 3.749 PSI.  PHASE( 4 8)=  13.6DEG.
          446.0HZ  A( 4)= .7E1 PSI    A( 8)= .417 PSI
  4    F/A= . 533    ETAC= 36.    TT5F= 3714.    PT5/PT2= 66.4    M2= .222    PSI= 37.77    PCI= 35.64
          221.HZ  A( 4)= 1.25 PSI.  A( 8)= 2.71 PSI.  PHASE( 4 8)=  17.2DEG.
          443.0HZ  A( 4)= .584 PSI    A( 8)= .225 PSI
  5    F/A= .0555    ETAC= 55.1    TT5F= 3549.    PT5/PT2= 67.3    M2= .233    PSI= 35.63    PCI= 34.60
          223.HZ  A( 4)= 1.230 PSI.  A( 8)= 2.543 PSI.  PHASE( 4 8)=  18.4DEG.
          440.2HZ  A( 4)= .66 PSI    A( 8)= .53 PSI
  6    F/A= .0505    ETAC= 52.3    TT5F= 3327.    PT5/PT2= 67.2    M2= .243    PSI= 37.12    PCI= 33.10
          220.HZ  A( 4)= 1.144 PSI.  A( 8)= 2.2 PSI.  PHASE( 4 8)=  14.7DEG.
          440.0HZ  A( 4)= .541 PSI    A( 8)= .2348 PSI
  7    F/A= .0437    ETAC= 71.    TT5F= 2772.    PT5/PT2= 55.7    M2= .252    PSI= 34.06    PCI= 30.24
          225.HZ  A( 4)= 2.25 PSI.  A( 8)= 1.413 PSI.  PHASE( 4 8)=  19.3DEG.
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6IN.CHAM[illegible].  [illegible] INLET  .[illegible] F[illegible].  [illegible] % [illegible]Z.  TURN [illegible].
  1  F/A=[illegible]  [illegible]TAC= [illegible]  TT5F= [illegible]7.  PT5/PT2= 57.2  M2= .364  PSI= 22.87  PCI= 16.67
  2  F/A= .[illegible]  [illegible]TAC [illegible]  TT5F= 322[illegible].  PT5/PT2= 85.5  M2= .234  PSI= 37.95  PCI= 32.72
       [illegible].HZ  A( 4)= [illegible]PSI,  A( 8)= 2.[illegible]PSI,  PHASE( 4 8)=  [illegible].[illegible]DEG.
       417.3HZ  A( 4)= .[illegible]PSI  A( 8)= .[illegible]PSI
  3  F/A= .[illegible]  TAC= [illegible]  TT5F= 3264.  PT5/PT2= 55.3  M2= .237  PSI= 37.67  PCI= 32.45
       [illegible].HZ  A( 4)= [illegible]PSI,  A( 8)= 3.[illegible]PSI,  PHASE( 4 8)=  [illegible].[illegible]
       [illegible].HZ  A( 4)= 1.[illegible]PSI  A( 8)= .[illegible]PSI
  4  F/A= .[illegible]43  [illegible]TAC= 74.[illegible]  TT5F= 31[illegible].  PT5/PT2= 85.3  M2= .240  PSI= 37.3[illegible]  PCI= 32.36
       2[illegible].HZ  A( 4)= [illegible]PSI,  A( 8)= 2.71[illegible]PSI,  PHASE( 4 8)=  17.60DEG.
       421.3HZ  A( 4)= 1.244[illegible]PSI  A( 8)= .5[illegible]PSI
  5  F/A= .55[illegible]2  [illegible]TAC= 79.[illegible]  TT5F= 3227.  PT5/PT2= 85.0  M2= .241  PSI= 37.13  PCI= 32.42
       21[illegible].HZ  A( 4)= 3.7[illegible]PSI,  A( 8)= 2.4[illegible]PSI,  PHASE( 4 8)=  18.2DEG.
       426.3HZ  A( 4)= .[illegible]PSI  A( 8)= .274[illegible]PSI
  6  F/A= .[illegible]433  [illegible]TAC= 51.3  TT5F= 3033.  PT5/PT2= 86.2  M2= .251  PSI= 35.65  PCI= 31.37
       [illegible].HZ  A( 4)= [illegible]PSI,  A( 8)= 1.45[illegible]PSI,  PHASE( 4 8)=  22.[illegible]DEG.
       417.5HZ  A( 4)= .3[illegible]PSI  A( 8)= .13[illegible]PSI
  7  F/A= .[illegible]  [illegible]TAC= [illegible]4.[illegible]  TT5F= 2[illegible]84.  PT5/PT2= 86.0  M2= .255  PSI= 35.11  PCI= 30.91
       2[illegible].HZ  A( 4)= 1.8[illegible]PSI,  A( 8)= 1.2[illegible]PSI,  PHASE( 4 8)=  22.[illegible]DEG.
       41[illegible].5HZ  A( 4)= .319[illegible]PSI  A( 8)= .1[illegible]PSI
  8  F/A= .[illegible]243  [illegible]TAC= [illegible]  TT5F= 2741.  PT5/PT2= 85.2  M2= .264  PSI= 33.89  PCI= 29.86
       [illegible].HZ  A( 4)= .[illegible]PSI,  A( 8)= .[illegible]PSI,  PHASE( 4 8)=  17.30DEG.
  9  F/A= .[illegible]29[illegible]  [illegible]TAC= [illegible]  TT5F= 2504.  PT5/PT2= 84.6  M2= .270  PSI= 32.2[illegible]  PCI= 28.36
 10  F/A= .[illegible]257  [illegible]TAC= [illegible]  TT5F= 2357.  PT5/PT2= [illegible]4.1  M2= .28[illegible]  PSI= 31.[illegible]7  PCI= 27.01
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b. Low Frequency Combustion Instabilities for an Eight Inch Diameter Combustion Chamber

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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   BASELINE     TUBE INJ.
   1    F/A=0.0000   ETAC=  0.0    TT5F=   529.    PT5/PT2= 48.0    M2= .729    PSI= 13.85    PCI=  7.33
   2    F/A=0.0000   ETAC=  0.0    TT5F=   992.    PT5/PT2= 46.4    M2= .742    PSI= 19.68    PCI= 10.12
   3    F/A= .0618   ETAC= 79.4    TT5F= 3503.    PT5/PT2= 79.1    M2= .525    PSI= 28.36    PCI= 25.77
           201.HZ  A( 1)= 1.352RMSPSI,  A( 4)= 1.516RMSPSI,  PHASE( 1 4)=  66.8DEG.
           201.HZ  A( 4)= 1.504RMSPSI,  A( 8)= 1.216RMSPSI,  PHASE( 4 8)=  14.1DEG.
           201.HZ  A( 7)= 1.241RMSPSI,  A( 8)= 1.293RMSPSI,  PHASE( 7 8)=   3.5DEG.
           157.HZ  A( 1)=  .422RMSPSI,  A( 4)=  .549RMSPSI,  PHASE( 1 4)=  46.6DEG.
           157.HZ  A( 4)=  .482RMSPSI,  A( 8)=  .415RMSPSI,  PHASE( 4 8)=  10.5DEG.
           157.HZ  A( 7)=  .411RMSPSI,  A( 8)=  .422RMSPSI,  PHASE( 7 8)=   1.6DEG.
   4    F/A= .0599   ETAC= 79.8    TT5F= 3472.    PT5/PT2= 79.1    M2= .528    PSI= 28.09    PCI= 25.60
           204.HZ  A( 1)= 1.362RMSPSI,  A( 4)= 1.587RMSPSI,  PHASE( 1 4)=  69.2DEG.
           204.HZ  A( 4)= 1.618RMSPSI,  A( 8)= 1.338RMSPSI,  PHASE( 4 8)=  15.8DEG.
           204.HZ  A( 7)= 1.250RMSPSI,  A( 8)= 1.307RMSPSI,  PHASE( 7 8)=   3.4DEG.
           200.HZ  A( 1)= 1.039RMSPSI,  A( 4)= 1.244RMSPSI,  PHASE( 1 4)=  65.5DEG.
           200.HZ  A( 4)= 1.170RMSPSI,  A( 8)=  .955RMSPSI,  PHASE( 4 8)=  14.0DEG.
           200.HZ  A( 7)=  .985RMSPSI,  A( 8)= 1.022RMSPSI,  PHASE( 7 8)=   4.2DEG.
   5    F/A= .0541   ETAC= 81.1    TT5F= 3371.    PT5/PT2= 78.7    M2= .546    PSI= 27.34    PCI= 25.11
          206.0HZ  A( 1)= 1.926RMSPSI   A( 4)= 2.327RMSPSI
           206.HZ  A( 4)= 2.265RMSPSI,  A( 8)= 1.957RMSPSI,  PHASE( 4 8)=  16.0DEG.
           206.HZ  A( 7)= 1.926RMSPSI,  A( 8)= 2.003RMSPSI,  PHASE( 7 8)=   5.2DEG.
   6    F/A= .0500   ETAC= 81.6    TT5F= 3268.    PT5/PT2= 78.1    M2= .558    PSI= 26.60    PCI= 24.50
   7    F/A= .0440   ETAC= 82.4    TT5F= 3087.    PT5/PT2= 77.5    M2= .585    PSI= 25.37    PCI= 23.44
   8    F/A= .0408   ETAC= 82.8    TT5F= 2977.    PT5/PT2= 76.9    M2= .600    PSI= 24.68    PCI= 22.73
   9    F/A= .0360   ETAC= 69.5    TT5F= 2501.    PT5/PT2= 73.3    M2= .653    PSI= 22.58    PCI= 19.98
  10    F/A= .0311   ETAC= 66.8    TT5F= 2269.    PT5/PT2= 71.3    M2= .685    PSI= 21.38    PCI= 18.12
  11    F/A= .0245   ETAC= 65.2    TT5F= 2007.    PT5/PT2= 67.7    M2= .717    PSI= 20.45    PCI= 16.07
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   TT0=750R   UNIF.INJ.
 1   F/A=0.0000   ETAC=  0.0   TT5F=  782.   PT5/PT2= 47.4   M2= .729   PSI= 17.15   PCI=  8.82
 2   F/A= .0635   ETAC= 64.7   TT5F= 2909.   PT5/PT2= 81.3   M2= .508   PSI= 25.25   PCI= 24.02
 3   F/A= .0574   ETAC= 86.6   TT5F= 3490.   PT5/PT2= 83.4   M2= .465   PSI= 27.78   PCI= 26.12
        185.HZ  A( 1)=  .663RMSPSI,  A( 4)=  .658RMSPSI,  PHASE( 1 4)=  68.9DEG.
        185.HZ  A( 7)=  .620RMSPSI,  A( 8)=  .650RMSPSI,  PHASE( 7 8)=  12.9DEG.
 4   F/A= .0564   ETAC= 87.4   TT5F= 3485.   PT5/PT2= 83.2   M2= .464   PSI= 27.75   PCI= 26.02
        182.HZ  A( 1)=  .535RMSPSI,  A( 4)=  .522RMSPSI,  PHASE( 1 4)=  69.2DEG.
        182.HZ  A( 7)=  .510RMSPSI,  A( 8)=  .527RMSPSI,  PHASE( 7 8)=  12.9DEG.
 5   F/A= .0532   ETAC= 87.3   TT5F= 3382.   PT5/PT2= 82.8   M2= .474   PSI= 27.15   PCI= 25.48
        185.HZ  A( 1)=  .589RMSPSI,  A( 4)=  .598RMSPSI,  PHASE( 1 4)=  67.7DEG.
        185.HZ  A( 7)=  .541RMSPSI,  A( 8)=  .556RMSPSI,  PHASE( 7 8)=  16.1DEG.
 6   F/A= .0500   ETAC= 70.2   TT5F= 2777.   PT5/PT2= 79.6   M2= .523   PSI= 24.58   PCI= 22.97
        180.HZ  A( 1)= 1.028RMSPSI,  A( 4)= 1.088RMSPSI,  PHASE( 1 4)=  69.8DEG.
        180.HZ  A( 7)=  .996RMSPSI,  A( 8)= 1.034RMSPSI,  PHASE( 7 8)=  13.7DEG.
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   TT0=750R     TUBE INJ.
   1.   F/A=0.0000   ETAC=  0.0    TT5F=  778.    PT5/PT2= 47.3    M2= .736    PSI= 17.04    PCI=  8.72
   2    F/A= .0545   ETAC= 69.2    TT5F= 2865.    PT5/PT2= 79.5    M2= .505    PSI= 25.35    PCI= 22.79
            158.HZ  A( 1)= 2.589RMSPSI,  A( 4)= 3.406RMSPSI,  PHASE( 1 4)=  60.8DEG.
            158.HZ  A( 7)= 2.990RMSPSI,  A( 8)= 2.928RMSPSI,  PHASE( 7 8)=   6.7DEG.
   3    F/A= .0490   ETAC= 72.7    TT5F= 2814.    PT5/PT2= 79.2    M2= .512    PSI= 25.00    PCI= 22.52
            176.HZ  A( 1)= 2.404RMSPSI,  A( 4)= 3.113RMSPSI,  PHASE( 1 4)=  73.1DEG.
            176.HZ  A( 4)= 2.944RMSPSI,  A( 8)= 2.558RMSPSI,  PHASE( 4 8)=  12.5DEG.
            176.HZ  A( 7)= 2.604RMSPSI,  A( 8)= 2.620RMSPSI,  PHASE( 7 8)=   9.4DEG.
   4    F/A= .0452   ETAC= 74.0    TT5F= 2730.    PT5/PT2= 78.9    M2= .526    PSI= 24.34    PCI= 22.05
            180.HZ  A( 1)=  .766RMSPSI,  A( 4)=  .965RMSPSI,  PHASE( 1 4)=  78.3DEG.
            180.HZ  A( 4)=  .988RMSPSI,  A( 8)=  .894RMSPSI,  PHASE( 4 8)=  13.2DEG.
            180.HZ  A( 7)=  .832RMSPSI,  A( 8)=  .855RMSPSI,  PHASE( 7 8)=   8.8DEG.
            189.HZ  A( 1)= 1.324RMSPSI,  A( 4)= 1.711RMSPSI,  PHASE( 1 4)=  79.3DEG.
            189.HZ  A( 4)= 1.664RMSPSI,  A( 8)= 1.512RMSPSI,  PHASE( 4 8)=  14.7DEG.
            189.HZ  A( 7)= 1.295RMSPSI,  A( 8)= 1.376RMSPSI,  PHASE( 7 8)=  10.3DEG.
   5    F/A= .0409   ETAC= 77.0    TT5F= 2661.    PT5/PT2= 78.9    M2= .542    PSI= 23.68    PCI= 21.82
   6    F/A= .0355   ETAC= 57.1    TT5F= 2008.    PT5/PT2= 74.2    M2= .628    PSI= 20.25    PCI= 17.72
   7    F/A= .0304   ETAC= 59.0    TT5F= 1888.    PT5/PT2= 72.9    M2= .651    PSI= 19.55    PCI= 16.85
   8    F/A= .0247   ETAC= 69.2    TT5F= 1862.    PT5/PT2= 72.2    M2= .659    PSI= 19.24    PCI= 16.64
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8IN.CHAMB.    4IN. INLET    NO F.HOLD.    LOW FLOW      TUBE INJ.
   1    F/A=0.0000     ETAC=  0.0     TT5F=  996.     PT5/PT2= 47.2     M2= .754     PSI= 11.49     PCI=  6.06
   2    F/A= .0560     ETAC= 77.3     TT5F= 3294.     PT5/PT2= 78.6     M2= .548     PSI= 16.21     PCI= 14.88
           181.HZ   A( 1)=  .635RMSPSI,   A( 4)=  .872RMSPSI,   PHASE( 1 4)=   66.9DEG.
           181.HZ   A( 4)=  .772RMSPSI,   A( 8)=  .572RMSPSI,   PHASE( 4 8)=   13.2DEG.
           181.HZ   A( 7)=  .707RMSPSI,   A( 8)=  .653RMSPSI,   PHASE( 7 8)=    4.6DEG.
   3    F/A= .0498     ETAC= 77.2     TT5F= 3125.     PT5/PT2= 77.7     M2= .569     PSI= 15.63     PCI= 14.35
           203.HZ   A( 1)=  .971RMSPSI,   A( 4)= 1.170RMSPSI,   PHASE( 1 4)=   80.6DEG.
           203.HZ   A( 4)=  .948RMSPSI,   A( 8)=  .771RMSPSI,   PHASE( 4 8)=   17.2DEG.
           203.HZ   A( 7)= 1.019RMSPSI,   A( 8)= 1.019RMSPSI,   PHASE( 7 8)=    6.5DEG.
   4    F/A= .0474     ETAC= 77.9     TT5F= 3072.     PT5/PT2= 77.8     M2= .581     PSI= 15.31     PCI= 14.19
   5    F/A= .0413     ETAC= 79.9     TT5F= 2917.     PT5/PT2= 76.8     M2= .605     PSI= 14.66     PCI= 13.52
   6    F/A= .0358     ETAC= 64.5     TT5F= 2380.     PT5/PT2= 72.7     M2= .668     PSI= 13.22     PCI= 11.54
   7    F/A= .0322     ETAC= 63.1     TT5F= 2240.     PT5/PT2= 71.1     M2= .692     PSI= 12.75     PCI= 10.91
   8    F/A= .0258     ETAC= 62.1     TT5F= 2000.     PT5/PT2= 68.1     M2= .721     PSI= 12.17     PCI=  9.77
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   40% NOZ.    TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  941.    PT5/PT2= 58.3    M2= .790    PSI= 14.66    PCI= 11.25
  2   F/A= .0658   ETAC= 71.4    TT5F= 3303.    PT5/PT2= 85.7    M2= .443    PSI= 26.63    PCI= 25.09
         127.HZ  A( 1)= 3.283RMSPSI,  A( 4)= 5.748RMSPSI,  PHASE( 1 4)=   45.60EG.
         127.HZ  A( 4)= 5.671RMSPSI,  A( 8)= 5.086RMSPSI,  PHASE( 4 8)=    9.70EG.
         254.HZ  A( 1)=  .812RMSPSI,  A( 4)= 1.213RMSPSI,  PHASE( 1 4)=   84.40EG.
         254.HZ  A( 4)= 1.695RMSPSI,  A( 8)= 1.296RMSPSI,  PHASE( 4 8)=  -12.00EG.
  3   F/A= .0610   ETAC= 76.7    TT5F= 3402.    PT5/PT2= 86.3    M2= .447    PSI= 26.74    PCI= 25.29
         140.HZ  A( 1)= 1.123RMSPSI,  A( 4)= 1.603RMSPSI,  PHASE( 1 4)=   36.70EG.
         140.HZ  A( 4)= 1.572RMSPSI,  A( 8)= 1.416RMSPSI,  PHASE( 4 8)=    5.00EG.
  4   F/A= .0561   ETAC= 76.2    TT5F= 3281.    PT5/PT2= 85.5    M2= .458    PSI= 26.18    PCI= 24.80
         191.HZ  A( 1)= 1.140RMSPSI,  A( 4)= 1.245RMSPSI,  PHASE( 1 4)=   54.50EG.
         191.HZ  A( 4)= 1.191RMSPSI,  A( 8)=  .957RMSPSI,  PHASE( 4 8)=   10.90EG.
         186.HZ  A( 1)=  .721RMSPSI,  A( 4)=  .777RMSPSI,  PHASE( 1 4)=   52.90EG.
         186.HZ  A( 4)=  .788RMSPSI,  A( 8)=  .647RMSPSI,  PHASE( 4 8)=    8.00EG.
  5   F/A= .0508   ETAC= 74.5    TT5F= 3096.    PT5/PT2= 85.0    M2= .477    PSI= 25.12    PCI= 23.97
         201.HZ  A( 1)=  .817RMSPSI,  A( 4)=  .821RMSPSI,  PHASE( 1 4)=   63.10EG.
         201.HZ  A( 4)=  .829RMSPSI,  A( 8)=  .720RMSPSI,  PHASE( 4 8)=   13.40EG.
  6   F/A= .0457   ETAC= 74.5    TT5F= 2945.    PT5/PT2= 84.6    M2= .495    PSI= 24.04    PCI= 23.12
        211.0HZ  A( 1)=  .354RMSPSI   A( 4)=  .370RMSPSI
         211.HZ  A( 4)=  .401RMSPSI,  A( 8)=  .382RMSPSI,  PHASE( 4 8)=   10.90EG.
  7   F/A= .0426   ETAC= 73.4    TT5F= 2802.    PT5/PT2= 84.2    M2= .508    PSI= 23.20    PCI= 22.42
         213.HZ  A( 1)=  .677RMSPSI,  A( 4)=  .721RMSPSI,  PHASE( 1 4)=   86.50EG.
         213.HZ  A( 4)=  .712RMSPSI,  A( 8)=  .670RMSPSI,  PHASE( 4 8)=   12.20EG.
  8   F/A= .0362   ETAC= 75.1    TT5F= 2620.    PT5/PT2= 83.7    M2= .536    PSI= 21.96    PCI= 21.33
  9   F/A= .0318   ETAC= 75.7    TT5F= 2459.    PT5/PT2= 83.0    M2= .558    PSI= 20.99    PCI= 20.45
 10   F/A= .0268   ETAC= 61.9    TT5F= 2033.    PT5/PT2= 80.6    M2= .636    PSI= 18.35    PCI= 17.51
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   60% NOZ.      TUBE INJ.
  1   F/A=0.0000    ETAC=  0.0    TT5F=  980.   PT5/PT2= 39.6      M2= .793   PSI= 22.03   PCI= 10.34
  2   F/A= .0597    ETAC= 73.9    TT5F= 3293.   PT5/PT2= 71.7      M2= .644   PSI= 27.55   PCI= 24.15
         199.HZ  A( 1)=  .590RMSPSI,  A( 4)= 1.003RMSPSI,  PHASE( 1 4)=  104.0DEG.
         199.HZ  A( 4)=  .888RMSPSI,  A( 8)=  .589RMSPSI,  PHASE( 4 8)=   12.7DEG.
         189.HZ  A( 1)=  .542RMSPSI,  A( 4)=  .989RMSPSI,  PHASE( 1 4)=  101.0DEG.
  3   F/A= .0522    ETAC= 71.5    TT5F= 3047.   PT5/PT2= 70.5      M2= .686   PSI= 25.91   PCI= 22.98
  4   F/A= .0487    ETAC= 72.3    TT5F= 2972.   PT5/PT2= 70.0      M2= .698   PSI= 25.20   PCI= 22.23
  5   F/A= .0458    ETAC= 68.4    TT5F= 2787.   PT5/PT2= 68.7      M2= .727   PSI= 24.11   PCI= 21.14
  6   F/A= .0395    ETAC= 64.4    TT5F= 2499.   PT5/PT2= 65.6      M2= .759   PSI= 23.15   PCI= 19.27
  7   F/A= .0357    ETAC= 58.8    TT5F= 2262.   PT5/PT2= 62.5      M2= .772   PSI= 22.78   PCI= 17.83
  8   F/A= .0309    ETAC= 61.4    TT5F= 2160.   PT5/PT2= 61.0      M2= .774   PSI= 22.37   PCI= 16.91
  9   F/A= .0262    ETAC= 61.6    TT5F= 2007.   PT5/PT2= 58.6      M2= .780   PSI= 22.33   PCI= 15.78
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8IN.CHAMB.   4IN. INLET   ND F.HOLD.   L/D=1.5      UNIF.INJ.
  1   F/A=0.0000    ETAC=  0.0    TT5F=   570.     PT5/PT2= 47.0    M2= .704    PSI= 15.02    PCI=  5.12
  2   F/A=0.0000    ETAC=  0.0    TT5F=   976.     PT5/PT2= 45.7    M2= .728    PSI= 20.56    PCI=  6.83
  3   F/A= .0647    ETAC= 12.1    TT5F= 1383.      PT5/PT2= 57.0    M2= .695    PSI= 21.77    PCI= 10.61
          75.HZ  A( 1)=  .029RMSPSI,  A( 4)=  .610RMSPSI,  PHASE( 1 4)=  66.6DEG.
          75.HZ  A( 4)=  .613RMSPSI,  A( 8)=  .583RMSPSI,  PHASE( 4 8)=   2.4DEG.
          75.HZ  A( 7)=  .838RMSPSI,  A( 8)=  .743RMSPSI,  PHASE( 7 8)=   3.7DEG.
  4   F/A= .0594    ETAC=  9.6    TT5F= 1296.      PT5/PT2= 54.7    M2= .700    PSI= 21.66    PCI=  8.97
  5   F/A= .0553    ETAC=  9.3    TT5F= 1279.      PT5/PT2= 54.1    M2= .703    PSI= 21.59    PCI=  8.75
  6   F/A= .0487    ETAC=  8.9    TT5F= 1242.      PT5/PT2= 53.0    M2= .704    PSI= 21.53    PCI=  8.30
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   BASELINE     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F=  986.    PT5/PT2= 68.4     M2= .860    PSI= 11.85    PCI= 11.24
   2    F/A= .0643    ETAC= 58.1    TT5F= 2867.    PT5/PT2= 87.8     M2= .439    PSI= 24.26    PCI= 23.87
            55.HZ  A( 1)=  .113RMSPSI,  A( 4)=  .106RMSPSI,  PHASE( 1 4)=   21.1DEG.
            55.HZ  A( 4)=  .116RMSPSI,  A( 8)=  .097RMSPSI,  PHASE( 4 8)=     .7DEG.
            55.HZ  A( 7)=  .092RMSPSI,  A( 8)=  .091RMSPSI,  PHASE( 7 8)=    1.60DEG.
   3    F/A= .0580    ETAC= 36.7    TT5F= 2119.    PT5/PT2= 86.5     M2= .538    PSI= 19.76    PCI= 19.86
   4    F/A= .0536    ETAC= 31.4    TT5F= 1917.    PT5/PT2= 86.1     M2= .584    PSI= 18.06    PCI= 18.24
   5    F/A= .0488    ETAC= 28.6    TT5F= 1784.    PT5/PT2= 85.6     M2= .621    PSI= 16.88    PCI= 17.15
           464.HZ  A( 1)=  .126RMSPSI,  A( 4)=  .179RMSPSI,  PHASE( 1 4)= -100.00DEG.
           464.HZ  A( 4)=  .183RMSPSI,  A( 8)=  .089RMSPSI,  PHASE( 4 8)=  127.00DEG.
           464.HZ  A( 7)=  .074RMSPSI,  A( 8)=  .089RMSPSI,  PHASE( 7 8)= -175.00DEG.
   6    F/A= .0446    ETAC= 28.9    TT5F= 1742.    PT5/PT2= 85.3     M2= .637    PSI= 16.52    PCI= 16.89
           458.HZ  A( 1)=  .399RMSPSI,  A( 4)=  .586RMSPSI,  PHASE( 1 4)=  -94.00DEG.
           458.HZ  A( 4)=  .630RMSPSI,  A( 8)=  .305RMSPSI,  PHASE( 4 8)=  113.00DEG.
           458.HZ  A( 7)=  .207RMSPSI,  A( 8)=  .299RMSPSI,  PHASE( 7 8)= -179.00DEG.
   7    F/A= .0401    ETAC= 28.8    TT5F= 1680.    PT5/PT2= 84.7     M2= .656    PSI= 15.98    PCI= 16.47
           447.HZ  A( 1)=  .214RMSPSI,  A( 4)=  .319RMSPSI,  PHASE( 1 4)=  -91.00DEG.
           447.HZ  A( 4)=  .333RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=   90.80DEG.
           447.HZ  A( 7)=  .111RMSPSI,  A( 8)=  .166RMSPSI,  PHASE( 7 8)=  174.00DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   BASELINE     TUBE INJ.
    1    F/A=0.0000    ETAC=  0.0    TT5F=  557.    PT5/PT2= 69.3    M2= .841    PSI=  8.77    PCI=  8.33
    2    F/A=0.0000    ETAC=  0.0    TT5F=  975.    PT5/PT2= 68.0    M2= .858    PSI= 11.86    PCI= 11.09
    3    F/A= .0511    ETAC= 71.2    TT5F= 2992.    PT5/PT2= 89.3    M2= .438    PSI= 24.17    PCI= 23.46
             133.HZ  A( 1)=  .008RMSPSI,  A( 4)= 5.024RMSPSI,  PHASE( 1 4)=  -75.0DEG.
             133.HZ  A( 4)= 5.024RMSPSI,  A( 8)= 4.223RMSPSI,  PHASE( 4 8)=   12.1DEG.
             133.HZ  A( 7)= 3.945RMSPSI,  A( 8)= 4.130RMSPSI,  PHASE( 7 8)=    1.3DEG.
             136.HZ  A( 1)=  .012RMSPSI,  A( 4)= 2.111RMSPSI,  PHASE( 1 4)=  -65.0DEG.
    4    F/A= .0447    ETAC= 75.7    TT5F= 2936.    PT5/PT2= 88.1    M2= .444    PSI= 23.95    PCI= 23.04
             136.HZ  A( 4)= 1.988RMSPSI,  A( 8)= 1.772RMSPSI,  PHASE( 4 8)=    5.9DEG.
             136.HZ  A( 7)= 1.541RMSPSI,  A( 8)= 1.695RMSPSI,  PHASE( 7 8)=    -.4DEG.
    5    F/A= .0399    ETAC= 77.1    TT5F= 2804.    PT5/PT2= 87.4    M2= .458    PSI= 23.42    PCI= 22.49
             140.HZ  A( 1)=  .002RMSPSI,  A( 4)=  .376RMSPSI,  PHASE( 1 4)=  -91.0DEG.
             140.HZ  A( 4)=  .353RMSPSI,  A( 8)=  .319RMSPSI,  PHASE( 4 8)=    1.6DEG.
             140.HZ  A( 7)=  .240RMSPSI,  A( 8)=  .270RMSPSI,  PHASE( 7 8)=   -1.1DEG.
             200.HZ  A( 1)=  .006RMSPSI,  A( 4)=  .442RMSPSI,  PHASE( 1 4)=  -30.0DEG.
             200.HZ  A( 4)=  .404RMSPSI,  A( 8)=  .321RMSPSI,  PHASE( 4 8)=    7.7DEG.
             200.HZ  A( 7)=  .256RMSPSI,  A( 8)=  .290RMSPSI,  PHASE( 7 8)=    3.5DEG.
    6    F/A= .0344    ETAC= 77.3    TT5F= 2600.    PT5/PT2= 87.0    M2= .484    PSI= 22.14    PCI= 21.40
             210.HZ  A( 4)=  .002RMSPSI,  A( 8)=  .205RMSPSI,  PHASE( 4 8)=   40.4DEG.
             210.HZ  A( 7)=  .186RMSPSI,  A( 8)=  .214RMSPSI,  PHASE( 7 8)=    9.3DEG.
    7    F/A= .0350    ETAC= 76.2    TT5F= 2603.    PT5/PT2= 86.6    M2= .480    PSI= 22.15    PCI= 21.33
             207.HZ  A( 1)=  .464RMSPSI,  A( 4)=  .399RMSPSI,  PHASE( 1 4)=   81.6DEG.
             207.HZ  A( 4)=  .202RMSPSI,  A( 8)=  .180RMSPSI,  PHASE( 4 8)=    9.5DEG.
             207.HZ  A( 7)=  .153RMSPSI,  A( 8)=  .177RMSPSI,  PHASE( 7 8)=    7.4DEG.
    8    F/A= .0309    ETAC= 76.3    TT5F= 2437.    PT5/PT2= 86.8    M2= .505    PSI= 20.98    PCI= 20.39
             207.HZ  A( 1)=  .202RMSPSI,  A( 4)=  .160RMSPSI,  PHASE( 1 4)=   81.2DEG.
             207.HZ  A( 4)=  .137RMSPSI,  A( 8)=  .137RMSPSI,  PHASE( 4 8)=   20.6DEG.
             207.HZ  A( 7)=  .074RMSPSI,  A( 8)=  .094RMSPSI,  PHASE( 7 8)=   13.2DEG.
    9    F/A= .0240    ETAC= 61.1    TT5F= 1929.    PT5/PT2= 85.8    M2= .609    PSI= 17.45    PCI= 17.51
             194.HZ  A( 1)=  .233RMSPSI,  A( 4)=  .227RMSPSI,  PHASE( 1 4)=  105.0DEG.
             194.HZ  A( 4)=  .145RMSPSI,  A( 8)=  .109RMSPSI,  PHASE( 4 8)=   19.6DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   TT0=750R      UNIF.INJ.
 1    F/A=0.0000   ETAC=  0.0     TT5F=  745.     PT5/PT2= 68.4     M2= .840     PSI= 10.54     PCI=  9.88
 2    F/A= .0654   ETAC= 78.1     TT5F= 3402.     PT5/PT2= 90.1     M2= .341     PSI= 27.24     PCI= 26.07
        123.HZ  A( 1)=  .690RMSPSI,  A( 4)=  .780RMSPSI,  PHASE( 1 4)=  37.1DEG.
        123.HZ  A( 4)=  .951RMSPSI,  A( 8)= 1.037RMSPSI,  PHASE( 4 8)=   7.0DEG.
        123.HZ  A( 7)=  .982RMSPSI,  A( 8)= 1.017RMSPSI,  PHASE( 7 8)=   1.1DEG.
        171.HZ  A( 1)= 1.057RMSPSI,  A( 4)=  .767RMSPSI,  PHASE( 1 4)=  56.3DEG.
        171.HZ  A( 4)=  .456RMSPSI,  A( 8)=  .476RMSPSI,  PHASE( 4 8)=  13.6DEG.
        171.HZ  A( 7)=  .465RMSPSI,  A( 8)=  .487RMSPSI,  PHASE( 7 8)=   5.7DEG.
 3    F/A= .0584   ETAC= 59.3     TT5F= 2650.     PT5/PT2= 90.6     M2= .405     PSI= 22.90     PCI= 22.51
        125.HZ  A( 1)= 1.430RMSPSI,  A( 4)= 1.664RMSPSI,  PHASE( 1 4)=  39.2DEG.
        125.HZ  A( 4)= 1.772RMSPSI,  A( 8)= 1.819RMSPSI,  PHASE( 4 8)=   8.7DEG.
        125.HZ  A( 7)= 1.726RMSPSI,  A( 8)= 1.788RMSPSI,  PHASE( 7 8)=   4.4DEG.
        250.HZ  A( 1)=  .530RMSPSI,  A( 4)=  .186RMSPSI,  PHASE( 1 4)=  90.5DEG.
 4    F/A= .0537   ETAC= 49.6     TT5F= 2257.     PT5/PT2= 87.7     M2= .433     PSI= 21.46     PCI= 20.89
 5    F/A= .0496   ETAC=  2.3     TT5F=  826.     PT5/PT2= 70.2     M2= .839     PSI= 10.49     PCI=  9.99
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BIN.CHAMB.   4.75 INLET    NO F.HOLD.    TTO=750R      TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F=  746.     PT5/PT2= 68.7     M2= .851     PSI= 10.28     PCI=  9.81
   2    F/A= .0349    ETAC= 69.3     TT5F= 2250.     PT5/PT2= 88.3     M2= .446     PSI= 20.56     PCI= 19.88
          131.HZ  A( 1)= 1.254RMSPSI,  A( 4)= 1.530RMSPSI,  PHASE( 1 4)=   47.5DEG.
          131.HZ  A( 4)= 1.726RMSPSI,  A( 8)= 1.603RMSPSI,  PHASE( 4 8)=    6.8DEG.
          131.HZ  A( 7)= 1.603RMSPSI,  A( 8)= 1.603RMSPSI,  PHASE( 7 8)=    2.0DEG.
   3    F/A= .0304    ETAC= 65.4     TT5F= 2007.     PT5/PT2= 87.4     M2= .480     PSI= 19.09     PCI= 18.39
          169.HZ  A( 1)= 2.296RMSPSI,  A( 4)= 2.404RMSPSI,  PHASE( 1 4)=   75.0DEG.
          169.HZ  A( 4)= 2.235RMSPSI,  A( 8)= 1.896RMSPSI,  PHASE( 4 8)=   13.0DEG.
          169.HZ  A( 7)= 2.034RMSPSI,  A( 8)= 2.050RMSPSI,  PHASE( 7 8)=    7.2DEG.
   4    F/A= .0249    ETAC= 60.2     TT5F= 1722.     PT5/PT2= 86.7     M2= .538     PSI= 17.07     PCI= 16.98
          163.HZ  A( 4)=  .190RMSPSI,  A( 8)=  .148RMSPSI,  PHASE( 4 8)=   17.0DEG.
          163.HZ  A( 7)=  .149RMSPSI,  A( 8)=  .140RMSPSI,  PHASE( 7 8)=   12.5DEG.
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8IN.CHAMB.    4.75 INLET    NO F.HOLD.    TTO=1250R     TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F= 1263.    PT5/PT2= 68.5   M2= .851   PSI= 13.63   PCI= 12.77
  2   F/A= .0654   ETAC= 71.9    TT5F= 3458.    PT5/PT2= 89.0   M2= .453   PSI= 26.41   PCI= 25.87
         135.HZ  A( 1)= 1.741RMSPSI,  A( 4)= 2.250RMSPSI,  PHASE( 1 4)=   6.8DEG.
         135.HZ  A( 4)= 2.651RMSPSI,  A( 8)= 2.327RMSPSI,  PHASE( 4 8)=  31.9DEG.
         135.HZ  A( 7)= 2.589RMSPSI,  A( 8)= 2.435RMSPSI,  PHASE( 7 8)=   2.2DEG.
  3   F/A= .0589   ETAC= 73.0    TT5F= 3396.    PT5/PT2= 88.3   M2= .461   PSI= 26.23   PCI= 25.51
         139.HZ  A( 7)= 1.242RMSPSI,  A( 8)= 1.234RMSPSI,  PHASE( 7 8)=   2.2DEG.
  4   F/A= .0542   ETAC= 74.2    TT5F= 3333.    PT5/PT2= 87.3   M2= .464   PSI= 25.94   PCI= 25.10
  5   F/A= .0490   ETAC= 75.7    TT5F= 3228.    PT5/PT2= 87.3   M2= .473   PSI= 25.35   PCI= 24.51
         138.HZ  A( 7)=  .908RMSPSI,  A( 8)=  .923RMSPSI,  PHASE( 7 8)=   2.3DEG.
  6   F/A= .0449   ETAC= 76.5    TT5F= 3144.    PT5/PT2= 87.2   M2= .489   PSI= 24.57   PCI= 23.89
  7   F/A= .0408   ETAC= 76.0    TT5F= 2991.    PT5/PT2= 86.8   M2= .505   PSI= 23.64   PCI= 22.96
  8   F/A= .0351   ETAC= 76.2    TT5F= 2797.    PT5/PT2= 86.7   M2= .535   PSI= 22.21   PCI= 22.03
  1   F/A=0.0000   ETAC=  0.0    TT5F=  612.    PT5/PT2= 72.2   M2= .757   PSI=  9.62   PCI=  9.05
  2   F/A=0.0000   ETAC=  0.0    TT5F=  546.    PT5/PT2= 69.3   M2= .834   PSI=  8.60   PCI=  8.07
  3   F/A=0.0000   ETAC=  0.0    TT5F= 1205.    PT5/PT2= 67.6   M2= .862   PSI= 13.30   PCI= 12.30
  4   F/A= .0639   ETAC= 72.6    TT5F= 3457.    PT5/PT2= 89.2   M2= .455   PSI= 26.13   PCI= 25.64
         135.HZ  A( 1)= 3.128RMSPSI,  A( 4)= 4.454RMSPSI,  PHASE( 1 4)=  50.5DEG.
         135.HZ  A( 4)= 4.192RMSPSI,  A( 8)= 3.144RMSPSI,  PHASE( 4 8)=  11.6DEG.
         135.HZ  A( 7)= 3.483RMSPSI,  A( 8)= 3.313RMSPSI,  PHASE( 7 8)=    .5DEG.
  5   F/A= .0563   ETAC= 73.2    TT5F= 3345.    PT5/PT2= 87.9   M2= .464   PSI= 25.94   PCI= 25.07
  6   F/A= .0525   ETAC= 74.6    TT5F= 3300.    PT5/PT2= 87.7   M2= .470   PSI= 25.50   PCI= 24.60
  7   F/A= .0503   ETAC= 75.0    TT5F= 3255.    PT5/PT2= 87.2   M2= .472   PSI= 25.34   PCI= 24.54
  8   F/A= .0444   ETAC= 76.2    TT5F= 3123.    PT5/PT2= 86.9   M2= .491   PSI= 24.34   PCI= 23.67
  9   F/A= .0418   ETAC= 77.2    TT5F= 3059.    PT5/PT2= 87.0   M2= .500   PSI= 23.80   PCI= 23.27
 10   F/A= .0359   ETAC= 77.5    TT5F= 2859.    PT5/PT2= 86.7   M2= .528   PSI= 22.56   PCI= 22.28
 11   F/A= .0299   ETAC= 78.8    TT5F= 2656.    PT5/PT2= 86.9   M2= .569   PSI= 21.06   PCI= 21.18
 12   F/A= .0236   ETAC= 71.6    TT5F= 2268.    PT5/PT2= 86.2   M2= .637   PSI= 18.57   PCI= 18.83
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BIN.CHAMB.   4.75 INLET   NO F.HOLD.   LOW FLOW     UNIF.INJ.
    1     F/A=0.0000     ETAC=  0.0     TT5F=  975.    PT5/PT2= 68.2     M2= .855     PSI=  7.17     PCI=  6.90
    2     F/A= .0654     ETAC= 51.8     TT5F= 2663.    PT5/PT2= 87.7     M2= .459     PSI= 13.96     PCI= 13.85
            191.HZ  A( 1)=  .134RMSPSI,  A( 4)=  .111RMSPSI,  PHASE( 1 4)=   77.6DEG.
            191.HZ  A( 7)=  .109RMSPSI,  A( 8)=  .116RMSPSI,  PHASE( 7 8)=   12.0DEG.
    3     F/A= .0610     ETAC= 42.3     TT5F= 2317.    PT5/PT2= 89.7     M2= .527     PSI= 12.09     PCI= 12.28
            448.HZ  A( 1)=  .129RMSPSI,  A( 4)=  .145RMSPSI,  PHASE( 1 4)= -140.0DEG.
    4     F/A= .0554     ETAC= 29.1     TT5F= 1860.    PT5/PT2= 86.0     M2= .594     PSI= 10.65     PCI= 10.85
            449.HZ  A( 1)=  .288RMSPSI,  A( 4)=  .370RMSPSI,  PHASE( 1 4)= -120.0DEG.
            449.HZ  A( 7)=  .162RMSPSI,  A( 8)=  .148RMSPSI,  PHASE( 7 8)=  121.0DEG.
    5     F/A= .0503     ETAC= 28.2     TT5F= 1785.    PT5/PT2= 85.4     M2= .617     PSI= 10.26     PCI= 10.48
            448.HZ  A( 1)=  .351RMSPSI,  A( 4)=  .502RMSPSI,  PHASE( 1 4)= -110.0DEG.
            448.HZ  A( 7)=  .190RMSPSI,  A( 8)=  .219RMSPSI,  PHASE( 7 8)=  111.0DEG.
    6     F/A= .0444     ETAC= 26.5     TT5F= 1676.    PT5/PT2= 84.6     M2= .651     PSI=  9.67     PCI= 10.00
            445.HZ  A( 1)=  .176RMSPSI,  A( 4)=  .285RMSPSI,  PHASE( 1 4)=  -90.0DEG.
            445.HZ  A( 7)=  .089RMSPSI,  A( 8)=  .145RMSPSI,  PHASE( 7 8)=   91.7DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   LOW FLOW     TUBE INJ.
   1    F/A=0.0000   ETAC=  0.0     TT5F=  998.     PT5/PT2= 69.3    M2= .854    PSI=  7.16    PCI=  6.95
   2    F/A= .0470   ETAC= 66.6     TT5F= 2757.     PT5/PT2= 88.4    M2= .462    PSI= 13.80    PCI= 13.49
             124.HZ  A( 1)= 2.204RMSPSI,  A( 4)= 3.021RMSPSI,  PHASE( 1 4)=   52.1DEG.
             124.HZ  A( 4)= 2.820RMSPSI,  A( 8)= 2.235RMSPSI,  PHASE( 4 8)=   11.4DEG.
             124.HZ  A( 7)= 2.358RMSPSI,  A( 8)= 2.219RMSPSI,  PHASE( 7 8)=    3.8DEG.
             140.HZ  A( 1)=  .741RMSPSI,  A( 4)=  .687RMSPSI,  PHASE( 1 4)=  106.0DEG.
             140.HZ  A( 7)=  .505RMSPSI,  A( 8)=  .401RMSPSI,  PHASE( 7 8)=  -18.0DEG.
             249.HZ  A( 1)=  .297RMSPSI,  A( 4)=  .341RMSPSI,  PHASE( 1 4)=   42.8DEG.
   3    F/A= .0390   ETAC= 74.2     TT5F= 2699.     PT5/PT2= 87.3    M2= .468    PSI= 13.71    PCI= 13.29
   4    F/A= .0348   ETAC= 76.8     TT5F= 2604.     PT5/PT2= 87.3    M2= .483    PSI= 13.27    PCI= 12.89
   5    F/A= .0312   ETAC= 76.7     TT5F= 2455.     PT5/PT2= 87.2    M2= .504    PSI= 12.65    PCI= 12.36
   6    F/A= .0245   ETAC= 81.2     TT5F= 2242.     PT5/PT2= 87.2    M2= .545    PSI= 11.64    PCI= 11.65
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8IN.CHAMB.    4.75 INLET    NO F.HOLD.    40% NOZ.       UNIF.INJ.
   1     F/A=0.0000     ETAC=  0.0     TT5F=   952.      PT5/PT2= 81.7      M2= .768     PSI= 10.68     PCI= 11.95
   2     F/A= .0648     ETAC= 58.5     TT5F= 2865.      PT5/PT2= 92.2      M2= .349     PSI= 24.24     PCI= 24.23
            127.HZ   A( 1)= 2.712RMSPSI,   A( 4)= 3.776RMSPSI,   PHASE( 1 4)=    44.3DEG.
            127.HZ   A( 4)= 3.729RMSPSI,   A( 8)= 3.699RMSPSI,   PHASE( 4 8)=     9.5DEG.
            254.HZ   A( 1)= 1.117RMSPSI,   A( 4)=  .784RMSPSI,   PHASE( 1 4)=    56.3DEG.
            254.HZ   A( 4)=  .784RMSPSI,   A( 8)=  .509RMSPSI,   PHASE( 4 8)=    25.6DEG.
   3     F/A= .0597     ETAC= 54.6     TT5F= 2683.      PT5/PT2= 91.1      M2= .363     PSI= 23.49     PCI= 23.35
            129.HZ   A( 1)= 2.235RMSPSI,   A( 4)= 3.021RMSPSI,   PHASE( 1 4)=    44.2DEG.
            129.HZ   A( 4)= 2.959RMSPSI,   A( 8)= 2.882RMSPSI,   PHASE( 4 8)=     9.9DEG.
            258.HZ   A( 1)=  .744RMSPSI,   A( 4)=  .441RMSPSI,   PHASE( 1 4)=    58.8DEG.
            258.HZ   A( 4)=  .430RMSPSI,   A( 8)=  .285RMSPSI,   PHASE( 4 8)=    32.2DEG.
   4     F/A= .0547     ETAC= 57.3     TT5F= 2690.      PT5/PT2= 91.4      M2= .370     PSI= 23.31     PCI= 23.31
             50.HZ   A( 1)= 1.022RMSPSI,   A( 4)= 1.108RMSPSI,   PHASE( 1 4)=    12.4DEG.
             50.HZ   A( 4)= 1.094RMSPSI,   A( 8)= 1.025RMSPSI,   PHASE( 4 8)=     4.6DEG.
   5     F/A= .0498     ETAC= 57.8     TT5F= 2601.      PT5/PT2= 91.6      M2= .381     PSI= 22.62     PCI= 22.60
             51.HZ   A( 1)= 1.711RMSPSI,   A( 4)= 1.849RMSPSI,   PHASE( 1 4)=    13.3DEG.
             51.HZ   A( 4)= 1.819RMSPSI,   A( 8)= 1.711RMSPSI,   PHASE( 4 8)=     4.1DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   40% NOZ.     TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F=  931.    PT5/PT2= 81.0    M2= .780    PSI= 10.56    PCI= 11.83
   2    F/A= .0513    ETAC= 69.4    TT5F= 2949.    PT5/PT2= 93.7    M2= .357    PSI= 23.81    PCI= 23.54
           110.HZ  A( 1)= 1.911RMSPSI,  A( 4)= 2.759RMSPSI,  PHASE( 1 4)=   42.5DEG.
           110.HZ  A( 4)= 2.635RMSPSI,  A( 8)= 2.481RMSPSI,  PHASE( 4 8)=   10.7DEG.
           126.HZ  A( 1)= 2.897RMSPSI,  A( 4)= 4.361RMSPSI,  PHASE( 1 4)=   47.1DEG.
           126.HZ  A( 4)= 4.438RMSPSI,  A( 8)= 4.176RMSPSI,  PHASE( 4 8)=   11.9DEG.
   3    F/A= .0447    ETAC= 74.1    TT5F= 2899.    PT5/PT2= 93.5    M2= .368    PSI= 23.42    PCI= 23.04
           131.HZ  A( 1)= 3.360RMSPSI,  A( 4)= 5.147RMSPSI,  PHASE( 1 4)=   50.6DEG.
           131.HZ  A( 4)= 5.070RMSPSI,  A( 8)= 4.854RMSPSI,  PHASE( 4 8)=    9.9DEG.
           263.HZ  A( 1)= 1.176RMSPSI,  A( 4)= 1.649RMSPSI,  PHASE( 1 4)=   79.0DEG.
           263.HZ  A( 4)= 1.587RMSPSI,  A( 8)= 1.227RMSPSI,  PHASE( 4 8)=  -12.0DEG.
   4    F/A= .0410    ETAC= 71.9    TT5F= 2727.    PT5/PT2= 91.6    M2= .375    PSI= 22.97    PCI= 22.55
           134.HZ  A( 1)=  .747RMSPSI,  A( 4)= 1.013RMSPSI,  PHASE( 1 4)=   40.9DEG.
           134.HZ  A( 4)=  .732RMSPSI,  A( 8)=  .709RMSPSI,  PHASE( 4 8)=    5.7DEG.
   5    F/A= .0346    ETAC= 71.0    TT5F= 2484.    PT5/PT2= 91.0    M2= .398    PSI= 21.65    PCI= 21.31
   6    F/A= .0310    ETAC= 71.7    TT5F= 2354.    PT5/PT2= 90.9    M2= .409    PSI= 20.86    PCI= 20.56
   7    F/A= .0254    ETAC= 70.8    TT5F= 2116.    PT5/PT2= 90.9    M2= .441    PSI= 19.33    PCI= 19.24
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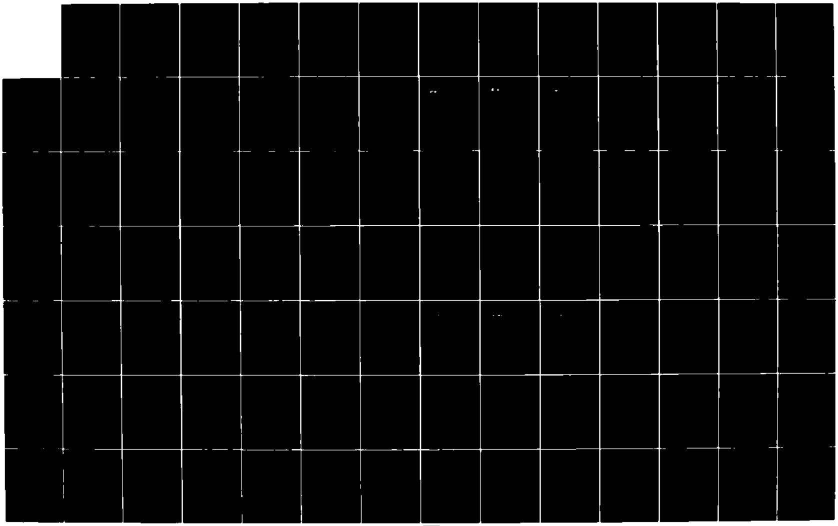
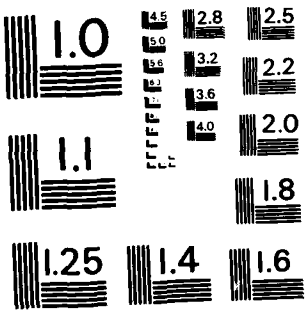
AD-A111 355 COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES PART I PARAMETRIC..(U) AIR FORCE WRIGHT AERONAUTICAL LABS WRIGHT-PATTERSON AFB OH D L DAVIS JUL 81 3/4

UNCLASSIFIED AFWAL-TR-81-2047-PT-1 F/G 21/5 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   60Z NOZ.      TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  988.    PT5/PT2= 56.9    M2= .860    PSI= 14.30    PCI=  9.59
  2   F/A= .0502   ETAC= 69.1    TT5F= 2925.    PT5/PT2= 84.0    M2= .535    PSI= 23.86    PCI= 22.79
          130.HZ  A( 1)= 1.803RMSPSI,  A( 4)= 2.959RMSPSI,  PHASE( 1 4)=   53.1DEG.
          130.HZ  A( 4)= 1.834RMSPSI,  A( 8)= 1.379RMSPSI,  PHASE( 4 8)=   11.8DEG.
  3   F/A= .0434   ETAC= 76.9    TT5F= 2924.    PT5/PT2= 83.3    M2= .532    PSI= 23.99    PCI= 22.50
          196.HZ  A( 1)= 2.142RMSPSI,  A( 4)= 2.420RMSPSI,  PHASE( 1 4)=   74.4DEG.
          196.HZ  A( 4)= 2.358RMSPSI,  A( 8)= 1.957RMSPSI,  PHASE( 4 8)=   15.6DEG.
  4   F/A= .0398   ETAC= 76.8    TT5F= 2796.    PT5/PT2= 82.6    M2= .549    PSI= 23.20    PCI= 21.82
          201.HZ  A( 1)= 1.973RMSPSI,  A( 4)= 2.235RMSPSI,  PHASE( 1 4)=   81.4DEG.
          201.HZ  A( 4)= 2.158RMSPSI,  A( 8)= 1.880RMSPSI,  PHASE( 4 8)=   16.6DEG.
  5   F/A= .0362   ETAC= 75.3    TT5F= 2627.    PT5/PT2= 82.2    M2= .574    PSI= 22.17    PCI= 20.93
          203.HZ  A( 1)= 1.276RMSPSI,  A( 4)= 1.472RMSPSI,  PHASE( 1 4)=   93.3DEG.
          203.HZ  A( 4)= 1.422RMSPSI,  A( 8)= 1.236RMSPSI,  PHASE( 4 8)=   16.4DEG.
  6   F/A= .0289   ETAC= 69.4    TT5F= 2237.    PT5/PT2= 81.3    M2= .658    PSI= 19.13    PCI= 18.88
  7   F/A= .0261   ETAC= 67.1    TT5F= 2095.    PT5/PT2= 80.3    M2= .694    PSI= 18.09    PCI= 17.94
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   L/D=1.5      TUBE INJ.
   1   F/A=0.0000   ETAC=  0.0   TT5F=  998.    PT5/PT2= 69.0    M2= .857    PSI= 11.89    PCI= 6.71
   2   F/A= .0450   ETAC= 47.0   TT5F= 2210.    PT5/PT2= 84.0    M2= .510    PSI= 20.76    PCI= 20.32
         124.HZ  A( 1)=  .479RMSPSI,  A( 4)=  .518RMSPSI,  PHASE( 1 4)=   35.1DEG.
         124.HZ  A( 4)=  .342RMSPSI,  A( 8)=  .324RMSPSI,  PHASE( 4 8)=   11.4DEG.
        124.0HZ  A( 7)=  .530RMSPSI   A( 8)=  .490RMSPSI
   3   F/A= .0407   ETAC= 51.7   TT5F= 2230.    PT5/PT2= 84.6    M2= .513    PSI= 20.73    PCI= 20.38
         191.HZ  A( 1)=  .949RMSPSI,  A( 4)= 1.019RMSPSI,  PHASE( 1 4)=   74.4DEG.
         191.HZ  A( 4)=  .482RMSPSI,  A( 8)=  .438RMSPSI,  PHASE( 4 8)=   10.0DEG.
         191.HZ  A( 7)= 1.063RMSPSI,  A( 8)=  .943RMSPSI,  PHASE( 7 8)=    7.7DEG.
   4   F/A= .0347   ETAC= 53.4   TT5F= 2121.    PT5/PT2= 84.7    M2= .542    PSI= 19.69    PCI= 19.49
         201.HZ  A( 1)=  .393RMSPSI,  A( 4)=  .456RMSPSI,  PHASE( 1 4)=   73.3DEG.
         201.HZ  A( 7)=  .330RMSPSI,  A( 8)=  .293RMSPSI,  PHASE( 7 8)=    4.5DEG.
   5   F/A= .0310   ETAC= 40.1   TT5F= 1767.    PT5/PT2= 84.0    M2= .627    PSI= 16.81    PCI= 16.66
   6   F/A= .0254   ETAC= 45.2   TT5F= 1719.    PT5/PT2= 83.8    M2= .644    PSI= 16.22    PCI= 16.09
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8IN.CHAMB.  4.75 INLET   .25Y F.H.    BASELINE     TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  567.   PT5/PT2= 52.0   M2= .482   PSI= 15.91   PCI=  9.13
  2   F/A=0.0000   ETAC=  0.0   TT5F=  987.   PT5/PT2= 51.4   M2= .492   PSI= 21.63   PCI= 12.31
  3   F/A= .0657   ETAC= 73.5   TT5F= 3378.   PT5/PT2= 81.5   M2= .358   PSI= 29.79   PCI= 25.01
        221.HZ  A( 1)=  .396RMSPSI,  A( 4)=  .683RMSPSI,  PHASE( 1 4)=  84.3DEG.
        221.HZ  A( 4)=  .734RMSPSI,  A( 8)=  .647RMSPSI,  PHASE( 4 8)=  17.6DEG.
        221.HZ  A( 7)=  .692RMSPSI,  A( 8)=  .684RMSPSI,  PHASE( 7 8)=  16.4DEG.
  4   F/A= .0585   ETAC= 74.1   TT5F= 3272.   PT5/PT2= 81.0   M2= .368   PSI= 29.18   PCI= 24.81
        226.HZ  A( 4)=  .314RMSPSI,  A( 8)=  .267RMSPSI,  PHASE( 4 8)=  19.5DEG.
  5   F/A= .0532   ETAC= 76.8   TT5F= 3222.   PT5/PT2= 80.6   M2= .371   PSI= 29.00   PCI= 24.61
  6   F/A= .0483   ETAC= 78.9   TT5F= 3139.   PT5/PT2= 80.2   M2= .377   PSI= 28.61   PCI= 24.26
  7   F/A= .0439   ETAC= 81.7   TT5F= 3060.   PT5/PT2= 79.9   M2= .384   PSI= 28.15   PCI= 23.79
  8   F/A= .0419   ETAC= 80.4   TT5F= 2960.   PT5/PT2= 79.0   M2= .389   PSI= 27.37   PCI= 23.01
  9   F/A= .0349   ETAC= 84.6   TT5F= 2776.   PT5/PT2= 78.0   M2= .402   PSI= 26.55   PCI= 22.10
 10   F/A= .0301   ETAC= 86.8   TT5F= 2610.   PT5/PT2= 77.0   M2= .415   PSI= 25.92   PCI= 21.36
 11   F/A= .0242   ETAC= 88.2   TT5F= 2349.   PT5/PT2= 75.1   M2= .435   PSI= 24.68   PCI= 20.14
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8IN.CHAMB.   4.75 INLET   .25Y F.H.   TT0=750R    UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  766.    PT5/PT2= 52.1    M2= .487    PSI= 18.89    PCI= 11.04
  2   F/A= .0631   ETAC= 75.8    TT5F= 3274.    PT5/PT2= 83.3    M2= .316    PSI= 29.44    PCI= 25.86
       189.HZ  A( 1)= 2.820RMSPSI,  A( 4)= 4.130RMSPSI,  PHASE( 1 4)=   76.3DEG.
       189.HZ  A( 4)= 4.223RMSPSI,  A( 8)= 4.192RMSPSI,  PHASE( 4 8)=   16.5DEG.
       189.HZ  A( 7)= 4.007RMSPSI,  A( 8)= 4.161RMSPSI,  PHASE( 7 8)=    5.8DEG.
       377.HZ  A( 1)=  .962RMSPSI,  A( 4)= 1.153RMSPSI,  PHASE( 1 4)=  152.0DEG.
       377.HZ  A( 4)= 1.224RMSPSI,  A( 8)=  .603RMSPSI,  PHASE( 4 8)=   49.6DEG.
       377.HZ  A( 7)= 1.056RMSPSI,  A( 8)=  .592RMSPSI,  PHASE( 7 8)=   42.5DEG.
  3   F/A= .0589   ETAC= 75.0    TT5F= 3162.    PT5/PT2= 83.0    M2= .325    PSI= 28.55    PCI= 25.11
       185.HZ  A( 1)= 2.481RMSPSI,  A( 4)= 3.560RMSPSI,  PHASE( 1 4)=   74.5DEG.
       185.HZ  A( 4)= 3.745RMSPSI,  A( 8)= 3.637RMSPSI,  PHASE( 4 8)=   18.0DEG.
       185.HZ  A( 7)= 3.390RMSPSI,  A( 8)= 3.514RMSPSI,  PHASE( 7 8)=    8.0DEG.
       371.HZ  A( 1)=  .971RMSPSI,  A( 4)= 1.074RMSPSI,  PHASE( 1 4)=  152.0DEG.
       371.HZ  A( 4)= 1.029RMSPSI,  A( 8)=  .459RMSPSI,  PHASE( 4 8)=   47.7DEG.
       371.HZ  A( 7)= 1.003RMSPSI,  A( 8)=  .499RMSPSI,  PHASE( 7 8)=   42.0DEG.
  4   F/A= .0554   ETAC= 73.4    TT5F= 3027.    PT5/PT2= 82.4    M2= .333    PSI= 27.79    PCI= 24.31
       183.HZ  A( 1)= 2.805RMSPSI,  A( 4)= 4.007RMSPSI,  PHASE( 1 4)=   71.8DEG.
       183.HZ  A( 4)= 3.914RMSPSI,  A( 8)= 3.729RMSPSI,  PHASE( 4 8)=   17.9DEG.
       183.HZ  A( 7)= 3.637RMSPSI,  A( 8)= 3.760RMSPSI,  PHASE( 7 8)=    9.1DEG.
       365.HZ  A( 1)= 1.056RMSPSI,  A( 4)= 1.037RMSPSI,  PHASE( 1 4)=  146.0DEG.
       365.HZ  A( 4)=  .977RMSPSI,  A( 8)=  .467RMSPSI,  PHASE( 4 8)=   40.3DEG.
       365.HZ  A( 7)=  .972RMSPSI,  A( 8)=  .476RMSPSI,  PHASE( 7 8)=   33.5DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    LOW FLOW    UNIF.INJ.
 1   F/A=0.0000   ETAC=  0.0    TT5F= 1009.    PT5/PT2= 52.0    M2= .492    PSI= 13.02    PCI=  7.65
 2   F/A= .0655   ETAC= 81.9    TT5F= 3637.    PT5/PT2= 83.0    M2= .349    PSI= 18.55    PCI= 16.25
 3   F/A= .0615   ETAC= 83.0    TT5F= 3596.    PT5/PT2= 82.7    M2= .351    PSI= 18.32    PCI= 16.04
         217.HZ  A( 1)=  .304RMSPSI,  A( 4)=  .539RMSPSI,  PHASE( 1 4)=  81.4DEG.
         217.HZ  A( 4)=  .542RMSPSI,  A( 8)=  .473RMSPSI,  PHASE( 4 8)=  19.1DEG.
         217.HZ  A( 7)=  .424RMSPSI,  A( 8)=  .445RMSPSI,  PHASE( 7 8)=   5.3DEG.
 4   F/A= .0561   ETAC= 84.5    TT5F= 3517.    PT5/PT2= 82.5    M2= .358    PSI= 17.98    PCI= 15.69
 5   F/A= .0509   ETAC= 84.3    TT5F= 3362.    PT5/PT2= 81.7    M2= .368    PSI= 17.53    PCI= 15.32
         211.HZ  A( 1)=  .359RMSPSI,  A( 4)=  .579RMSPSI,  PHASE( 1 4)=  77.9DEG.
         211.HZ  A( 4)=  .604RMSPSI,  A( 8)=  .478RMSPSI,  PHASE( 4 8)=  21.0DEG.
         211.HZ  A( 7)=  .482RMSPSI,  A( 8)=  .495RMSPSI,  PHASE( 7 8)=   7.1DEG.
 6   F/A= .0448   ETAC= 80.0    TT5F= 3035.    PT5/PT2= 79.9    M2= .381    PSI= 16.77    PCI= 14.35
         198.HZ  A( 1)= 1.173RMSPSI,  A( 4)= 1.942RMSPSI,  PHASE( 1 4)=  67.0DEG.
         198.HZ  A( 4)= 1.649RMSPSI,  A( 8)= 1.205RMSPSI,  PHASE( 4 8)=  18.0DEG.
         198.HZ  A( 7)= 1.325RMSPSI,  A( 8)= 1.254RMSPSI,  PHASE( 7 8)=   8.7DEG.
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8IN.CHAMB.    4.75 INLET   .25Y F.H.    40% NOZ.      UNIF.INJ.
   1   F/A=0.0000   ETAC=  0.0    TT5F=  931.     PT5/PT2= 62.7     M2= .492    PSI= 17.29    PCI= 12.56
   2   F/A= .0642   ETAC= 85.3    TT5F= 3737.     PT5/PT2= 88.3     M2= .285    PSI= 30.22    PCI= 28.09
          203.HZ  A( 1)= 1.385RMSPSI,  A( 4)= 1.504RMSPSI,  PHASE( 1 4)=   62.6DEG.
          203.HZ  A( 4)= 1.498RMSPSI,  A( 8)= 1.372RMSPSI,  PHASE( 4 8)=   19.0DEG.
   3   F/A= .0595   ETAC= 85.9    TT5F= 3658.     PT5/PT2= 88.2     M2= .291    PSI= 29.65    PCI= 27.52
          204.HZ  A( 1)= 1.254RMSPSI,  A( 4)= 1.392RMSPSI,  PHASE( 1 4)=   64.8DEG.
          204.HZ  A( 4)= 1.413RMSPSI,  A( 8)= 1.284RMSPSI,  PHASE( 4 8)=   20.0DEG.
 [illegible]   F/A= .0544   ETAC= 85.3    TT5F= 3507.     PT5/PT2= 87.5     M2= .299    PSI= 28.95    PCI= 26.82
          205.HZ  A( 1)= 1.259RMSPSI,  A( 4)= 1.418RMSPSI,  PHASE( 1 4)=   66.4DEG.
          205.HZ  A( 4)= 1.452RMSPSI,  A( 8)= 1.293RMSPSI,  PHASE( 4 8)=   20.7DEG.
   5   F/A= .0490   ETAC= 86.3    TT5F= 3364.     PT5/PT2= 87.3     M2= .307    PSI= 28.11    PCI= 26.00
          203.HZ  A( 1)= 1.009RMSPSI,  A( 4)= 1.182RMSPSI,  PHASE( 1 4)=   63.3DEG.
          203.HZ  A( 4)= 1.179RMSPSI,  A( 8)=  .985RMSPSI,  PHASE( 4 8)=   20.5DEG.
   6   F/A= .0456   ETAC= 91.2    TT5F= 3371.     PT5/PT2= 86.7     M2= .306    PSI= 28.28    PCI= 25.60
          136.HZ  A( 1)= 1.310RMSPSI,  A( 4)= 1.865RMSPSI,  PHASE( 1 4)=   19.7DEG.
          136.HZ  A( 4)= 1.865RMSPSI,  A( 8)= 2.188RMSPSI,  PHASE( 4 8)=    8.7DEG.
          273.HZ  A( 1)=  .558RMSPSI,  A( 4)=  .447RMSPSI,  PHASE( 1 4)=   72.0DEG.
          273.HZ  A( 4)=  .453RMSPSI,  A( 8)=  .338RMSPSI,  PHASE( 4 8)=   11.4DEG.
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8IN.CHAMB.  5.375INLET  NO F.MOLD.  BASELINE     UNIF.INJ.
  1   F/A= .0650   ETAC= 49.9    TT5F= 2616.    PT5/PT2= 90.6    M2= .359    PSI= 23.39   PCI= 22.93
  2   F/A= .0579   ETAC= 52.9    TT5F= 2619.    PT5/PT2= 90.5    M2= .362    PSI= 23.28   PCI= 22.69
        9.HZ  A( 1)=  .316RMSPSI,  A( 4)=  .277RMSPSI,  PHASE( 1 4)=   13.3DEG.
  3   F/A= .0543   ETAC= 78.1    TT5F= 3295.    PT5/PT2= 91.5    M2= .320    PSI= 26.50   PCI= 25.64
      141.HZ  A( 1)= 2.173RMSPSI,  A( 4)= 2.789RMSPSI,  PHASE( 1 4)=   31.8DEG.
      141.HZ  A( 4)= 2.774RMSPSI,  A( 8)= 3.067RMSPSI,  PHASE( 4 8)=   10.5DEG.
       59.HZ  A( 1)=  .493RMSPSI,  A( 4)=  .561RMSPSI,  PHASE( 1 4)=   13.8DEG.
       59.HZ  A( 4)=  .553RMSPSI,  A( 8)=  .467RMSPSI,  PHASE( 4 8)=    7.9DEG.
      F/A= .0491   ETAC= 76.1    TT5F= 3090.    PT5/PT2= 91.5    M2= .334    PSI= 25.13   PCI= 24.31
      146.HZ  A( 1)= 1.572RMSPSI,  A( 4)= 1.942RMSPSI,  PHASE( 1 4)=   30.9DEG.
      146.HZ  A( 4)= 2.204RMSPSI,  A( 8)= 2.312RMSPSI,  PHASE( 4 8)=   10.3DEG.
       59.HZ  A( 1)=  .727RMSPSI,  A( 4)=  .860RMSPSI,  PHASE( 1 4)=   14.1DEG.
       59.HZ  A( 4)=  .710RMSPSI,  A( 8)=  .633RMSPSI,  PHASE( 4 8)=    5.8DEG.
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```
BIN.CHAMB.  5.375INLET  NO F.MOLD.  TTO=750R      UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  751.     PT5/PT2= 84.9     M2= .753    PSI=  9.22   PCI= 10.40
  2   F/A= .0647   ETAC= 48.5    TT5F= 2394.     PT5/PT2= 90.5     M2= .321    PSI= 22.78   PCI= 22.09
        121.HZ  A( 1)=  .421RMSPSI,  A( 4)=  .595RMSPSI,  PHASE( 1 4)=  37.7DEG.
        121.HZ  A( 4)=  .564RMSPSI,  A( 8)=  .579RMSPSI,  PHASE( 4 8)=   5.8DEG.
  3   F/A= .0604   ETAC= 50.5    TT5F= 2405.     PT5/PT2= 90.7     M2= .322    PSI= 22.68   PCI= 21.9[illegible]
        117.HZ  A( 1)=  .598RMSPSI,  A( 4)=  .858RMSPSI,  PHASE( 1 4)=  38.2DEG.
        117.HZ  A( 4)=  .826RMSPSI,  A( 8)=  .840RMSPSI,  PHASE( 4 8)=   8.0DEG.
  4   F/A= .0554   ETAC= 43.8    TT5F= 2115.     PT5/PT2= 90.7     M2= .350    PSI= 20.90   PCI= 20.36
        125.HZ  A( 1)= 1.446RMSPSI,  A( 4)= 1.957RMSPSI,  PHASE( 1 4)=  38.5DEG.
        125.HZ  A( 4)= 1.741RMSPSI,  A( 8)= 1.726RMSPSI,  PHASE( 4 8)=   9.4DEG.
  5   F/A= .0506   ETAC= 39.2    TT5F= 1901.     PT5/PT2= 91.1     M2= .377    PSI= 19.32   PCI= 18.98
        125.HZ  A( 1)=  .971RMSPSI,  A( 4)= 1.335RMSPSI,  PHASE( 1 4)=  41.3DEG.
        125.HZ  A( 4)= 1.244RMSPSI,  A( 8)= 1.213RMSPSI,  PHASE( 4 8)=  10.4DEG.
         96.HZ  A( 1)=  .613RMSPSI,  A( 4)=  .806RMSPSI,  PHASE( 1 4)=  40.8DEG.
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```
8IN.CHAMB.   5.375INLET   NO F.HOLD.   TTO=750R      TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F=  751.    PT5/PT2= 85.3    M2= .752    PSI=  9.18    PCI= 10.38
   2    F/A= .0250    ETAC= 69.9    TT5F= 1879.    PT5/PT2= 90.3    M2= .385    PSI= 18.87    PCI= 18.10
          129.HZ   A( 1)=  .775RMSPSI,  A( 4)=  .945RMSPSI,  PHASE( 1 4)=   34.4DEG.
          129.HZ   A( 4)= 1.117RMSPSI,  A( 8)= 1.093RMSPSI,  PHASE( 4 8)=    7.4DEG.
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8IN.CHAMB.   5.375INLET   NO F.HOLD.   TT0=1250R   TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F= 1233.   PT5/PT2= 84.8   M2= .763   PSI= 11.91   PCI= 13.46
  2   F/A= .0534   ETAC= 68.1   TT5F= 3141.   PT5/PT2= 91.7   M2= .376   PSI= 25.07   PCI= 24.53
      124.HZ  A( 1)= 1.373RMSPSI,  A( 4)= 1.618RMSPSI,  PHASE( 1 4)=   33.7DEG.
      124.HZ  A( 4)= 1.446RMSPSI,  A( 8)= 1.225RMSPSI,  PHASE( 4 8)=   14.6DEG.
  3   F/A= .0498   ETAC= 68.7   TT5F= 3086.   PT5/PT2= 91.4   M2= .384   PSI= 24.58   PCI= 23.93
  4   F/A= .0457   ETAC= 68.8   TT5F= 2965.   PT5/PT2= 90.8   M2= .389   PSI= 24.18   PCI= 23.39
  5   F/A= .0413   ETAC= 71.5   TT5F= 2911.   PT5/PT2= 90.8   M2= .397   PSI= 23.89   PCI= 23.08
  6   F/A= .0347   ETAC= 74.9   TT5F= 2758.   PT5/PT2= 90.7   M2= .413   PSI= 22.93   PCI= 22.31
  7   F/A= .0310   ETAC= 75.0   TT5F= 2619.   PT5/PT2= 90.6   M2= .428   PSI= 22.11   PCI= 21.60
  8   F/A= .0254   ETAC= 74.5   TT5F= 2387.   PT5/PT2= 90.7   M2= .457   PSI= 20.38   PCI= 20.04
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8IN.CHAMB.  5.375INLET   NO F.HOLD.   LOW FLOW     UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=   943.    PT5/PT2= 83.7     M2= .784     PSI=  6.11   PCI=  6.96
  2   F/A= .0660   ETAC= 46.6    TT5F= 2505.    PT5/PT2= 90.5     M2= .366     PSI= 13.82   PCI= 13.44
  3   F/A= .0617   ETAC= 45.5    TT5F= 2423.    PT5/PT2= 90.6     M2= .375     PSI= 13.38   PCI= 13.04
  4   F/A= .0568   ETAC= 63.4    TT5F= 2902.    PT5/PT2= 91.2     M2= .341     PSI= 14.82   PCI= 14.38
        139.HZ  A( 1)=  .855RMSPSI,  A( 4)= 1.040RMSPSI,  PHASE( 1 4)=   29.6DEG.
        139.HZ  A( 4)= 1.296RMSPSI,  A( 8)= 1.367RMSPSI,  PHASE( 4 8)=   11.7DEG.
  5   F/A= .0519   ETAC= 63.1    TT5F= 2790.    PT5/PT2= 91.3     M2= .351     PSI= 14.37   PCI= 13.98
        140.HZ  A( 1)=  .542RMSPSI,  A( 4)=  .647RMSPSI,  PHASE( 1 4)=   28.2DEG.
        140.HZ  A( 4)=  .606RMSPSI,  A( 8)=  .657RMSPSI,  PHASE( 4 8)=   13.4DEG.
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```
8IN.CHAMB.    5.375INLET    NO F.HOLD.    40% NOZ.    UNIF.INJ.
 1    F/A= .0648    ETAC= 50.3    TT5F= 2608.    PT5/PT2= 93.7    M2= .285    PSI= 23.46    PCI= 23.10
        124.HZ  A( 1)= 2.635RMSPSI,  A( 4)= 3.683RMSPSI,  PHASE( 1 4)=  42.8DEG.
        124.HZ  A( 4)= 3.637RMSPSI,  A( 8)= 3.868RMSPSI,  PHASE( 4 8)=  10.4DEG.
        124.HZ  A( 7)= 3.807RMSPSI,  A( 8)= 3.868RMSPSI,  PHASE( 7 8)=   3.9DEG.
        247.HZ  A( 1)=  .649RMSPSI,  A( 4)=  .826RMSPSI,  PHASE( 1 4)=  43.1DEG.
        247.HZ  A( 4)=  .849RMSPSI,  A( 8)=  .603RMSPSI,  PHASE( 4 8)=  22.8DEG.
        247.HZ  A( 7)=  .681RMSPSI,  A( 8)=  .579RMSPSI,  PHASE( 7 8)=  22.4DEG.
 2    F/A= .0601    ETAC= 49.0    TT5F= 2517.    PT5/PT2= 93.6    M2= .295    PSI= 22.82    PCI= 22.55
        126.HZ  A( 1)= 2.450RMSPSI,  A( 4)= 3.483RMSPSI,  PHASE( 1 4)=  43.4DEG.
        126.HZ  A( 7)= 3.560RMSPSI,  A( 8)= 3.652RMSPSI,  PHASE( 7 8)=   5.2DEG.
        126.HZ  A( 4)= 3.452RMSPSI,  A( 8)= 3.668RMSPSI,  PHASE( 4 8)=  10.7DEG.
        251.HZ  A( 1)=  .706RMSPSI,  A( 4)=  .794RMSPSI,  PHASE( 1 4)=  48.8DEG.
        251.HZ  A( 4)=  .781RMSPSI,  A( 8)=  .544RMSPSI,  PHASE( 4 8)=  25.6DEG.
        251.HZ  A( 7)=  .629RMSPSI,  A( 8)=  .553RMSPSI,  PHASE( 7 8)=  26.6DEG.
 3    F/A= .0546    ETAC= 46.9    TT5F= 2382.    PT5/PT2= 93.4    M2= .307    PSI= 22.15    PCI= 21.88
        127.HZ  A( 1)= 2.019RMSPSI,  A( 4)= 2.805RMSPSI,  PHASE( 1 4)=  41.4DEG.
        127.HZ  A( 4)= 2.913RMSPSI,  A( 8)= 2.959RMSPSI,  PHASE( 4 8)=  10.8DEG.
        127.HZ  A( 7)= 2.928RMSPSI,  A( 8)= 2.990RMSPSI,  PHASE( 7 8)=   4.9DEG.
        256.HZ  A( 1)=  .603RMSPSI,  A( 4)=  .646RMSPSI,  PHASE( 1 4)=  50.6DEG.
        256.HZ  A( 4)=  .616RMSPSI,  A( 8)=  .416RMSPSI,  PHASE( 4 8)=  31.8DEG.
        256.HZ  A( 7)=  .425RMSPSI,  A( 8)=  .374RMSPSI,  PHASE( 7 8)=  27.5DEG.
 4    F/A= .0498    ETAC= 48.8    TT5F= 2354.    PT5/PT2= 93.6    M2= .311    PSI= 21.86    PCI= 21.56
        130.HZ  A( 1)= 1.680RMSPSI,  A( 4)= 2.358RMSPSI,  PHASE( 1 4)=  41.1DEG.
        130.HZ  A( 4)= 2.373RMSPSI,  A( 8)= 2.497RMSPSI,  PHASE( 4 8)=  10.9DEG.
        130.HZ  A( 7)= 2.574RMSPSI,  A( 8)= 2.604RMSPSI,  PHASE( 7 8)=   4.7DEG.
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8IN.CHAMB.   5.375INLET   NO F.HOLD.   40% NOZ.      TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  909.    PT5/PT2= 89.6    M2= .592    PSI= 11.13    PCI= 12.17
  2   F/A= .0421   ETAC= 64.8    TT5F= 2577.    PT5/PT2= 95.2    M2= .302    PSI= 22.36    PCI= 22.13
      121.HZ  A( 1)= 2.604RMSPSI,  A( 4)= 3.406RMSPSI,  PHASE( 1 4)=   41.2DEG.
      121.HZ  A( 4)= 3.483RMSPSI,  A( 8)= 3.390RMSPSI,  PHASE( 4 8)=   12.9DEG.
      121.HZ  A( 7)= 3.514RMSPSI,  A( 8)= 3.375RMSPSI,  PHASE( 7 8)=    3.9DEG.
  3   F/A= .0357   ETAC= 73.7    TT5F= 2580.    PT5/PT2= 93.4    M2= .300    PSI= 22.63    PCI= 21.98
      124.HZ  A( 1)= 1.011RMSPSI,  A( 4)= 1.295RMSPSI,  PHASE( 1 4)=   39.3DEG.
      124.HZ  A( 4)= 1.271RMSPSI,  A( 8)= 1.310RMSPSI,  PHASE( 4 8)=   11.0DEG.
      124.HZ  A( 7)= 1.279RMSPSI,  A( 8)= 1.258RMSPSI,  PHASE( 7 8)=    4.2DEG.
  4   F/A= .0317   ETAC= 73.7    TT5F= 2437.    PT5/PT2= 93.2    M2= .312    PSI= 21.81    PCI= 21.34
      123.HZ  A( 1)=  .256RMSPSI,  A( 4)=  .319RMSPSI,  PHASE( 1 4)=   36.9DEG.
      123.HZ  A( 4)=  .325RMSPSI,  A( 8)=  .334RMSPSI,  PHASE( 4 8)=   14.4DEG.
      123.HZ  A( 7)=  .478RMSPSI,  A( 8)=  .359RMSPSI,  PHASE( 7 8)=  -10.0DEG.
  5   F/A= .0263   ETAC= 70.4    TT5F= 2161.    PT5/PT2= 92.9    M2= .335    PSI= 20.20    PCI= 19.78
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8IN.CHAMB.   5.375INLET   NO F.HOLD.   60% NOZ.     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F=   524.    PT5/PT2= 73.2    M2= .824    PSI=  8.17    PCI=  7.70
   2    F/A=0.0000    ETAC=  0.0     TT5F=   950.    PT5/PT2= 71.8    M2= .849    PSI= 11.28    PCI= 10.53
   3    F/A= .0647    ETAC= 77.7     TT5F=  3512.    PT5/PT2= 88.3    M2= .360    PSI= 28.12    PCI= 26.29
   4    F/A= .0618    ETAC= 79.4     TT5F=  3511.    PT5/PT2= 88.3    M2= .360    PSI= 28.05    PCI= 26.16
            199.HZ  A( 1)= 1.429RMSPSI,  A( 4)= 1.057RMSPSI,  PHASE( 1 4)=  73.1DEG.
            199.HZ  A( 4)= 1.013RMSPSI,  A( 8)= 1.131RMSPSI,  PHASE( 4 8)=  24.7DEG.
            199.HZ  A( 7)= 1.211RMSPSI,  A( 8)= 1.211RMSPSI,  PHASE( 7 8)=   9.3DEG.
   5    F/A= .0557    ETAC= 81.7     TT5F=  3431.    PT5/PT2= 88.6    M2= .367    PSI= 27.54    PCI= 25.75
             63.HZ  A( 1)=  .532RMSPSI,  A( 4)=  .564RMSPSI,  PHASE( 1 4)=  19.4DEG.
             63.HZ  A( 4)=  .572RMSPSI,  A( 8)=  .490RMSPSI,  PHASE( 4 8)=   8.1DEG.
             63.HZ  A( 7)=  .529RMSPSI,  A( 8)=  .462RMSPSI,  PHASE( 7 8)=   6.0DEG.
   6    F/A= .0484    ETAC= 73.9     TT5F=  3008.    PT5/PT2= 87.8    M2= .401    PSI= 25.35    PCI= 23.86
            180.HZ  A( 1)= 1.130RMSPSI,  A( 4)= 1.256RMSPSI,  PHASE( 1 4)=  70.2DEG.
            180.HZ  A( 4)= 1.268RMSPSI,  A( 8)= 1.177RMSPSI,  PHASE( 4 8)=  32.2DEG.
           180.0HZ  A( 7)= 1.131RMSPSI   A( 8)= 1.099RMSPSI
   7    F/A= .0454    ETAC= 47.1     TT5F=  2219.    PT5/PT2= 87.6    M2= .491    PSI= 20.27    PCI= 19.69
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8IN.CHAMB.  5.375INLET   NO F.HOLD.   60% NOZ.      TUBE INJ.
 1   F/A=0.0000    ETAC=  0.0     TT5F=  982.     PT5/PT2= 72.4    M2= .843    PSI= 11.34    PCI= 10.78
 2   F/A= .0516    ETAC= 26.8     TT5F= 1770.     PT5/PT2= 85.4    M2= .562    PSI= 17.64    PCI= 17.61
        84.HZ  A( 1)=  .433RMSPSI,  A( 4)=  .590RMSPSI,  PHASE( 1 4)=   38.3DEG.
        84.HZ  A( 7)=  .553RMSPSI,  A( 8)=  .450RMSPSI,  PHASE( 7 8)=    7.3DEG.
 3   F/A= .0464    ETAC= 32.3     TT5F= 1860.     PT5/PT2= 85.9    M2= .550    PSI= 18.10    PCI= 17.96
       384.HZ  A( 1)=  .368RMSPSI,  A( 4)=  .553RMSPSI,  PHASE( 1 4)=  171.0DEG.
       384.HZ  A( 4)=  .513RMSPSI,  A( 8)=  .324RMSPSI,  PHASE( 4 8)=  150.0DEG.
      384.0HZ  A( 7)=  .339RMSPSI   A( 8)=  .353RMSPSI
 4   F/A= .0413    ETAC= 62.5     TT5F= 2510.     PT5/PT2= 87.4    M2= .455    PSI= 22.07    PCI= 21.15
       128.HZ  A( 1)=  .992RMSPSI,  A( 4)= 1.258RMSPSI,  PHASE( 1 4)=   38.1DEG.
       128.HZ  A( 4)= 1.333RMSPSI,  A( 8)= 1.156RMSPSI,  PHASE( 4 8)=   17.4DEG.
      128.0HZ  A( 7)= 1.271RMSPSI   A( 8)= 1.136RMSPSI
 5   F/A= .0352    ETAC= 74.4     TT5F= 2577.     PT5/PT2= 87.3    M2= .450    PSI= 22.51    PCI= 21.21
       145.HZ  A( 1)=  .441RMSPSI,  A( 4)=  .464RMSPSI,  PHASE( 1 4)=   31.4DEG.
       145.HZ  A( 4)=  .405RMSPSI,  A( 8)=  .396RMSPSI,  PHASE( 4 8)=   13.7DEG.
      145.0HZ  A( 7)=  .452RMSPSI   A( 8)=  .428RMSPSI
 6   F/A= .0308    ETAC= 74.4     TT5F= 2402.     PT5/PT2= 86.8    M2= .469    PSI= 21.56    PCI= 20.41
       189.HZ  A( 1)=  .382RMSPSI,  A( 4)=  .317RMSPSI,  PHASE( 1 4)=   56.0DEG.
      189.0HZ  A( 7)=  .364RMSPSI   A( 8)=  .379RMSPSI
 7   F/A= .0265    ETAC= 73.7     TT5F= 2220.     PT5/PT2= 86.7    M2= .498    PSI= 20.12    PCI= 19.19
       194.HZ  A( 1)=  .866RMSPSI,  A( 4)=  .774RMSPSI,  PHASE( 1 4)=   69.7DEG.
       194.HZ  A( 4)=  .598RMSPSI,  A( 8)=  .518RMSPSI,  PHASE( 4 8)=   23.5DEG.
       194.HZ  A( 7)=  .599RMSPSI,  A( 8)=  .610RMSPSI,  PHASE( 7 8)=    9.7DEG.
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8IN.CHAMB.   5.375INLET   NO F.MOLD.   L/D=1.5       UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0    TT5F=  965.    PT5/PT2= 84.6    M2= .779    PSI= 10.29    PCI=  9.99
  2    F/A= .0661    ETAC= 12.0    TT5F= 1389.    PT5/PT2= 88.5    M2= .535    PSI= 15.54    PCI= 15.34
          304.HZ   A( 1)=  .202RMSPSI,   A( 4)=  .248RMSPSI,   PHASE( 1 4)=  143.0DEG.
          304.HZ   A( 7)=  .140RMSPSI,   A( 8)=  .109RMSPSI,   PHASE( 7 8)=   15.1DEG.
  3    F/A= .0611    ETAC= 11.3    TT5F= 1359.    PT5/PT2= 88.6    M2= .552    PSI= 15.05    PCI= 14.85
          304.HZ   A( 1)=  .108RMSPSI,   A( 4)=  .139RMSPSI,   PHASE( 1 4)=  145.0DEG.
          304.HZ   A( 7)=  .143RMSPSI,   A( 8)=  .108RMSPSI,   PHASE( 7 8)=   16.6DEG.
  4    F/A= .0553    ETAC= 11.0    TT5F= 1333.    PT5/PT2= 88.5    M2= .566    PSI= 14.68    PCI= 14.49
          300.HZ   A( 1)=  .157RMSPSI,   A( 4)=  .205RMSPSI,   PHASE( 1 4)=  143.0DEG.
          300.HZ   A( 7)=  .191RMSPSI,   A( 8)=  .143RMSPSI,   PHASE( 7 8)=   14.7DEG.
  5    F/A= .0508    ETAC= 11.3    TT5F= 1321.    PT5/PT2= 88.6    M2= .574    PSI= 14.31    PCI= 14.13
          301.HZ   A( 1)=  .157RMSPSI,   A( 4)=  .210RMSPSI,   PHASE( 1 4)=  147.0DEG.
          301.HZ   A( 7)=  .248RMSPSI,   A( 8)=  .180RMSPSI,   PHASE( 7 8)=   18.2DEG.
  6    F/A= .0452    ETAC= 11.7    TT5F= 1302.    PT5/PT2= 88.5    M2= .584    PSI= 14.13    PCI= 14.06
          290.HZ   A( 1)=  .082RMSPSI,   A( 4)=  .113RMSPSI,   PHASE( 1 4)=  141.0DEG.
          290.HZ   A( 7)=  .179RMSPSI,   A( 8)=  .125RMSPSI,   PHASE( 7 8)=   16.8DEG.
  7    F/A= .0402    ETAC=  9.7    TT5F= 1228.    PT5/PT2= 87.7    M2= .614    PSI= 13.41    PCI= 13.34
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8IN.CHAMB.   5.375INLET   .25Y F.H.   BASELINE     UNIF.INJ.
 1   F/A= .0636    ETAC= 80.6     TT5F= 3573.    PT5/PT2= 87.3    M2= .282    PSI= 30.00    PCI= 27.46
        190.HZ  A( 1)= 1.199RMSPSI,  A( 4)= 1.492RMSPSI,  PHASE( 1 4)=   51.9DEG.
        190.HZ  A( 4)= 1.557RMSPSI,  A( 8)= 1.438RMSPSI,  PHASE( 4 8)=   21.3DEG.
 2   F/A= .0598    ETAC= 79.7     TT5F= 3472.    PT5/PT2= 87.0    M2= .288    PSI= 29.41    PCI= 26.88
        190.HZ  A( 1)= 1.486RMSPSI,  A( 4)= 1.896RMSPSI,  PHASE( 1 4)=   53.6DEG.
        190.HZ  A( 4)= 1.757RMSPSI,  A( 8)= 1.618RMSPSI,  PHASE( 4 8)=   21.5DEG.
 3   F/A= .0532    ETAC= 77.3     TT5F= 3231.    PT5/PT2= 86.6    M2= .300    PSI= 28.18    PCI= 25.61
        196.HZ  A( 1)= 1.372RMSPSI,  A( 4)= 1.788RMSPSI,  PHASE( 1 4)=   57.2DEG.
        196.HZ  A( 4)= 1.911RMSPSI,  A( 8)= 1.803RMSPSI,  PHASE( 4 8)=   23.8DEG.
 4   F/A= .0500    ETAC= 77.0     TT5F= 3135.    PT5/PT2= 86.3    M2= .308    PSI= 27.63    PCI= 25.04
        196.HZ  A( 1)= 1.618RMSPSI,  A( 4)= 2.188RMSPSI,  PHASE( 1 4)=   58.8DEG.
        196.HZ  A( 4)= 2.173RMSPSI,  A( 8)= 2.003RMSPSI,  PHASE( 4 8)=   23.9DEG.
 5   F/A= .0455    ETAC= 75.5     TT5F= 2952.    PT5/PT2= 85.8    M2= .317    PSI= 26.57    PCI= 24.09
        193.HZ  A( 1)= 1.572RMSPSI,  A( 4)= 2.281RMSPSI,  PHASE( 1 4)=   56.7DEG.
        193.HZ  A( 4)= 2.327RMSPSI,  A( 8)= 1.988RMSPSI,  PHASE( 4 8)=   23.1DEG.
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8IN.CHAMB.   5.375INLET   .25Y F.H.     TTO=750R       UNIF.INJ.                                          PCI= 11.07
   1    F/A=0.0000    ETAC=  0.0     TT5F=   751.      PT5/PT2= 65.2      M2= .479      PSI= 14.90     PCI= 25.85
   2    F/A= .0643    ETAC= 72.3     TT5F= 3186.       PT5/PT2= 87.5      M2= .260      PSI= 28.26
           176.HZ   A( 1)=  .616RMSPSI,   A( 4)=  .680RMSPSI,   PHASE( 1 4)=   59.3DEG.
           176.HZ   A( 4)=  .499RMSPSI,   A( 8)=  .579RMSPSI,   PHASE( 4 8)=   16.5DEG.
   3    F/A= .0606    ETAC= 71.3     TT5F= 3080.       PT5/PT2= 87.6      M2= .267      PSI= 27.38     PCI= 25.15
           124.HZ   A( 1)= 1.143RMSPSI,   A( 4)= 2.050RMSPSI,   PHASE( 1 4)=   25.9DEG.
           124.HZ   A( 4)= 1.911RMSPSI,   A( 8)= 1.926RMSPSI,   PHASE( 4 8)=    9.9DEG.
           160.HZ   A( 1)= 1.402RMSPSI,   A( 4)= 1.726RMSPSI,   PHASE( 1 4)=   43.9DEG.
           160.HZ   A( 4)= 1.880RMSPSI,   A( 8)= 1.819RMSPSI,   PHASE( 4 8)=   14.8DEG.
   4    F/A= .0550    ETAC= 67.1     TT5F= 2821.       PT5/PT2= 87.1      M2= .281      PSI= 25.99     PCI= 23.63
           124.HZ   A( 1)= 1.772RMSPSI,   A( 4)= 3.298RMSPSI,   PHASE( 1 4)=   27.0DEG.
           124.HZ   A( 4)= 3.021RMSPSI,   A( 8)= 3.005RMSPSI,   PHASE( 4 8)=   10.1DEG.
           159.HZ   A( 1)= 1.988RMSPSI,   A( 4)= 2.743RMSPSI,   PHASE( 1 4)=   43.7DEG.
           159.HZ   A( 4)= 3.267RMSPSI,   A( 8)= 3.128RMSPSI,   PHASE( 4 8)=   13.9DEG.
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BIN.CHAMB.    5.375INLET    .25Y F.H.     LOW FLOW      UNIF.INJ.
 1   F/A=0.0000    ETAC=  0.0     TT5F=   938.    PT5/PT2= 64.5     M2= .493     PSI= 10.11     PCI=  7.47
 2   F/A= .0641    ETAC= 74.0     TT5F=  3340.    PT5/PT2= [illegible]7.3     M2= .289     PSI= 17.20     PCI= 15.62
         189.HZ  A( 1)= 1.191RMSPSI,  A( 4)= 1.557RMSPSI,  PHASE( 1 4)=   54.5DEG.
         189.HZ  A( 4)= 1.541RMSPSI,  A( 8)= 1.444RMSPSI,  PHASE( 4 8)=   19.5DEG.
 3   F/A= .0609    ETAC= 74.8     TT5F=  3322.    PT5/PT2= 87.1     M2= .294     PSI= 17.07     PCI= 15.46
         190.HZ  A( 1)= 1.188RMSPSI,  A( 4)= 1.572RMSPSI,  PHASE( 1 4)=   54.4DEG.
         190.HZ  A( 4)= 1.381RMSPSI,  A( 8)= 1.256RMSPSI,  PHASE( 4 8)=   20.3DEG.
 4   F/A= .0564    ETAC= 73.4     TT5F=  3195.    PT5/PT2= 86.5     M2= .303     PSI= 16.74     PCI= 15.16
         193.HZ  A( 1)= 1.117RMSPSI,  A( 4)= 1.530RMSPSI,  PHASE( 1 4)=   55.0DEG.
         193.HZ  A( 4)= 1.603RMSPSI,  A( 8)= 1.455RMSPSI,  PHASE( 4 8)=   21.1DEG.
 5   F/A= .0525    ETAC= 71.5     TT5F=  3046.    PT5/PT2= 86.1     M2= .311     PSI= 16.23     PCI= 14.70
         190.HZ  A( 1)= 1.094RMSPSI,  A( 4)= 1.541RMSPSI,  PHASE( 1 4)=   55.4DEG.
         190.HZ  A( 4)= 1.557RMSPSI,  A( 8)= 1.375RMSPSI,  PHASE( 4 8)=   21.8DEG.
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8IN.CHAMB.  5.375INLET  .25Y F.H.   40% NOZ.   UNIF.INJ.
  1  F/A=0.0000  ETAC=  0.0   TT5F=  913.   PT5/PT2= 75.7   M2= .463   PSI= 14.48   PCI= 12.61
  2  F/A= .0647  ETAC= 80.9   TT5F= 3604.   PT5/PT2= 91.0   M2= .231   PSI= 29.24   PCI= 27.65
     135.HZ  A( 1)=  .314RMSPSI,  A( 4)=  .583RMSPSI,  PHASE( 1 4)=  23.7DEG.
     135.HZ  A( 4)=  .573RMSPSI,  A( 8)=  .623RMSPSI,  PHASE( 4 8)=   7.9DEG.
     135.HZ  A( 7)=  .633RMSPSI,  A( 8)=  .626RMSPSI,  PHASE( 7 8)=    .8DEG.
  3  F/A= .0600  ETAC= 79.6   TT5F= 3472.   PT5/PT2= 91.2   M2= .238   PSI= 28.35   PCI= 26.[illegible]
     133.HZ  A( 1)= 1.447RMSPSI,  A( 4)= 2.743RMSPSI,  PHASE( 1 4)=  26.5DEG.
     133.HZ  A( 4)= 2.712RMSPSI,  A( 8)= 2.882RMSPSI,  PHASE( 4 8)=  10.6DEG.
     133.HZ  A( 7)= 2.959RMSPSI,  A( 8)= 2.866RMSPSI,  PHASE( 7 8)=   2.7DEG.
     264.HZ  A( 1)=  .390RMSPSI,  A( 4)=  .542RMSPSI,  PHASE( 1 4)=  44.5DEG.
     264.HZ  A( 4)=  .549RMSPSI,  A( 8)=  .305RMSPSI,  PHASE( 4 8)=  23.6DEG.
     264.HZ  A( 7)=  .424RMSPSI,  A( 8)=  .304RMSPSI,  PHASE( 7 8)=  26.0DEG.
  4  F/A= .0548  ETAC= 80.0   TT5F= 3357.   PT5/PT2= 91.3   M2= .244   PSI= 27.55   PCI= 26.01
     133.HZ  A( 1)= 1.618RMSPSI,  A( 4)= 3.051RMSPSI,  PHASE( 1 4)=  26.6DEG.
     133.HZ  A( 4)= 3.159RMSPSI,  A( 8)= 3.313RMSPSI,  PHASE( 4 8)=  10.6DEG.
     133.HZ  A( 7)= 3.421RMSPSI,  A( 8)= 3.298RMSPSI,  PHASE( 7 8)=   2.9DEG.
  5  F/A= .0508  ETAC= 79.7   TT5F= 3232.   PT5/PT2= 91.3   M2= .250   PSI= 26.82   PCI= 25.27
     134.HZ  A( 1)= 1.926RMSPSI,  A( 4)= 3.606RMSPSI,  PHASE( 1 4)=  26.7DEG.
     134.HZ  A( 4)= 3.591RMSPSI,  A( 8)= 3.699RMSPSI,  PHASE( 4 8)=  10.6DEG.
     134.HZ  A( 7)= 3.776RMSPSI,  A( 8)= 3.637RMSPSI,  PHASE( 7 8)=   3.2DEG.
     266.HZ  A( 1)=  .638RMSPSI,  A( 4)=  .791RMSPSI,  PHASE( 1 4)=  49.3DEG.
     266.HZ  A( 4)=  .792RMSPSI,  A( 8)=  .458RMSPSI,  PHASE( 4 8)=  12.7DEG.
     266.HZ  A( 7)=  .650RMSPSI,  A( 8)=  .467RMSPSI,  PHASE( 7 8)=  16.0DEG.
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8IN.CHAMB.  5.375INLET  .25Y F.M.   40% NOZ.     TUBE INJ.
  1  F/A=0.0000  ETAC=  0.0   TT5F=  949.    PT5/PT2= 76.5    M2= .455    PSI= 14.65   PCI= 12.82
  2  F/A= .0642  ETAC= 53.1   TT5F= 2705.    PT5/PT2= 89.5    M2= .269    PSI= 25.07   PCI= 23.45
  3  F/A= .0605  ETAC= 55.0   TT5F= 2713.    PT5/PT2= 89.6    M2= .269    PSI= 25.04   PCI= 23.43
  4  F/A= .0555  ETAC= 58.7   TT5F= 2747.    PT5/PT2= 89.6    M2= .270    PSI= 24.97   PCI= 23.33
  5  F/A= .0503  ETAC= 62.1   TT5F= 2735.    PT5/PT2= 89.3    M2= .271    PSI= 24.90   PCI= [illegible]
       135.HZ  A( 1)=  .162RMSPSI,  A( 4)=  .327RMSPSI,  PHASE( 1 4)=  28.70EG.
       135.HZ  A( 4)=  .317RMSPSI,  A( 8)=  .327RMSPSI,  PHASE( 4 8)=  12.30EG.
       135.HZ  A( 7)=  .382RMSPSI,  A( 8)=  .370RMSPSI,  PHASE( 7 8)=   5.00EG.
  6  F/A= .0471  ETAC= 69.4   TT5F= 2839.    PT5/PT2= 89.8    M2= .266    PSI= 25.17   PCI= [illegible]
       133.HZ  A( 1)= 2.111RMSPSI,  A( 4)= 4.592RMSPSI,  PHASE( 1 4)=  30.60EG.
       133.HZ  A( 4)= 4.777RMSPSI,  A( 8)= 4.654RMSPSI,  PHASE( 4 8)=  14.30EG.
       133.HZ  A( 7)= 4.932RMSPSI,  A( 8)= 4.685RMSPSI,  PHASE( 7 8)=   5.80EG.
       267.HZ  A( 1)=  .777RMSPSI,  A( 4)= 1.459RMSPSI,  PHASE( 1 4)=  57.10EG.
       267.HZ  A( 4)= 1.429RMSPSI,  A( 8)=  .886RMSPSI,  PHASE( 4 8)=  17.30EG.
       267.HZ  A( 7)= 1.311RMSPSI,  A( 8)=  .897RMSPSI,  PHASE( 7 8)=  15.80EG.
  7  F/A= .0422  ETAC= 72.5   TT5F= 2773.    PT5/PT2= 89.7    M2= .271    PSI= 24.72   PCI= 22.82
       133.HZ  A( 1)= 2.158RMSPSI,  A( 4)= 4.685RMSPSI,  PHASE( 1 4)=  30.90EG.
       133.HZ  A( 4)= 4.654RMSPSI,  A( 8)= 4.438RMSPSI,  PHASE( 4 8)=  15.20EG.
       133.HZ  A( 7)= 4.716RMSPSI,  A( 8)= 4.423RMSPSI,  PHASE( 7 8)=   6.50EG.
       265.HZ  A( 1)=  .754RMSPSI,  A( 4)= 1.435RMSPSI,  PHASE( 1 4)=  59.10EG.
       265.HZ  A( 4)= 1.442RMSPSI,  A( 8)=  .848RMSPSI,  PHASE( 4 8)=  15.40EG.
       265.HZ  A( 7)= 1.296RMSPSI,  A( 8)=  .845RMSPSI,  PHASE( 7 8)=  14.80EG.
  8  F/A= .0366  ETAC= 73.9   TT5F= 2606.    PT5/PT2= 89.1    M2= .281    PSI= 24.03   PCI= 22.26
       130.HZ  A( 1)= 1.834RMSPSI,  A( 4)= 3.976RMSPSI,  PHASE( 1 4)=  30.80EG.
       130.HZ  A( 4)= 3.930RMSPSI,  A( 8)= 3.652RMSPSI,  PHASE( 4 8)=  16.10EG.
       130.HZ  A( 7)= 3.991RMSPSI,  A( 8)= 3.714RMSPSI,  PHASE( 7 8)=   6.60EG.
       261.HZ  A( 1)=  .615RMSPSI,  A( 4)= 1.256RMSPSI,  PHASE( 1 4)=  62.00EG.
       261.HZ  A( 4)= 1.254RMSPSI,  A( 8)=  .752RMSPSI,  PHASE( 4 8)=  11.90EG.
       261.HZ  A( 7)= 1.210RMSPSI,  A( 8)=  .761RMSPSI,  PHASE( 7 8)=  11.80EG.
  9  F/A= .0310  ETAC= 76.5   TT5F= 2450.    PT5/PT2= 88.8    M2= .293    PSI= 23.11   PCI= 21.58
       126.HZ  A( 1)= 1.216RMSPSI,  A( 4)= 2.558RMSPSI,  PHASE( 1 4)=  33.00EG.
       126.HZ  A( 4)= 2.558RMSPSI,  A( 8)= 2.235RMSPSI,  PHASE( 4 8)=  17.90EG.
       126.HZ  A( 7)= 2.389RMSPSI,  A( 8)= 2.204RMSPSI,  PHASE( 7 8)=   7.90EG.
       253.HZ  A( 1)=  .185RMSPSI,  A( 4)=  .382RMSPSI,  PHASE( 1 4)=  72.10EG.
       253.HZ  A( 4)=  .427RMSPSI,  A( 8)=  .239RMSPSI,  PHASE( 4 8)=  11.70EG.
       253.HZ  A( 7)=  .418RMSPSI,  A( 8)=  .233RMSPSI,  PHASE( 7 8)=  13.00EG.
 10  F/A= .0258  ETAC= 80.4   TT5F= 2304.    PT5/PT2= 88.5    M2= .306    PSI= 22.42   PCI= 20.81
       129.HZ  A( 1)=  .256RMSPSI,  A( 4)=  .499RMSPSI,  PHASE( 1 4)=  30.50EG.
       129.HZ  A( 4)=  .493RMSPSI,  A( 8)=  .445RMSPSI,  PHASE( 4 8)=  15.10EG.
       129.HZ  A( 7)=  .475RMSPSI,  A( 8)=  .447RMSPSI,  PHASE( 7 8)=   6.60EG.
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8IN.CHAMB.   5.375INLET   .25X F.H.   60% NOZ.     UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=   977.    PT5/PT2= 54.4    M2= .488    PSI= 20.39   PCI= 12.1[illegible]
  2   F/A= .0650   ETAC= 80.8    TT5F= 3608.     PT5/PT2= 83.4    M2= .328    PSI= 30.69   PCI= 26.5[illegible]
        217.HZ  A( 1)=  .254RMSPSI,  A( 4)=  .524RMSPSI,  PHASE( 1 4)=   80.0DEG.
        217.HZ  A( 4)=  .499RMSPSI,  A( 8)=  .559RMSPSI,  PHASE( 4 8)=   13.6DEG.
        217.HZ  A( 7)=  .473RMSPSI,  A( 8)=  .495RMSPSI,  PHASE( 7 8)=    3.1DEG.
  3   F/A= .0614   ETAC= 80.7    TT5F= 3544.     PT5/PT2= 83.1    M2= .334    PSI= 30.26   PCI= 26.[illegible]
        216.HZ  A( 1)=  .359RMSPSI,  A( 4)=  .741RMSPSI,  PHASE( 1 4)=   81.3DEG.
        216.HZ  A( 4)=  .714RMSPSI,  A( 8)=  .786RMSPSI,  PHASE( 4 8)=   14.2DEG.
        216.HZ  A( 7)=  .658RMSPSI,  A( 8)=  .697RMSPSI,  PHASE( 7 8)=    5.0DEG.
  4   F/A= .0563   ETAC= 80.0    TT5F= 3399.     PT5/PT2= 82.7    M2= .342    PSI= 29.38   PCI= 25.34
        216.HZ  A( 1)=  .148RMSPSI,  A( 4)=  .314RMSPSI,  PHASE( 1 4)=   84.0DEG.
        216.HZ  A( 7)=  .200RMSPSI,  A( 8)=  .203RMSPSI,  PHASE( 7 8)=    3.9DEG.
  5   F/A= .0505   ETAC= 78.6    TT5F= 3192.     PT5/PT2= 82.0    M2= .352    PSI= 28.45   PCI= 24.36
        213.HZ  A( 1)=  .188RMSPSI,  A( 4)=  .376RMSPSI,  PHASE( 1 4)=   80.1DEG.
        213.HZ  A( 7)=  .227RMSPSI,  A( 8)=  .228RMSPSI,  PHASE( 7 8)=    4.6DEG.
  6   F/A= .0470   ETAC= 78.4    TT5F= 3081.     PT5/PT2= 81.5    M2= .361    PSI= 27.85   PCI= 23.85
        210.HZ  A( 1)=  .515RMSPSI,  A( 4)= 1.006RMSPSI,  PHASE( 1 4)=   79.8DEG.
        210.HZ  A( 4)= 1.029RMSPSI,  A( 8)= 1.002RMSPSI,  PHASE( 4 8)=   21.8DEG.
        210.HZ  A( 7)= 1.031RMSPSI,  A( 8)= 1.022RMSPSI,  PHASE( 7 8)=    6.9DEG.
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BIN.CHAMB.    5.375INLET    .25Y F.H.    L/D=1.5      UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0    TT5F=  954.     PT5/PT2= 64.4    M2= .485    PSI= 17.17    PCI= 11.94
  2    F/A= .0651    ETAC= 49.4    TT5F= 2596.     PT5/PT2= 83.5    M2= .327    PSI= 25.84    PCI= 23.21
          273.HZ  A( 1)=  .413RMSPSI,  A( 4)=  .675RMSPSI,  PHASE( 1 4)=   97.4DEG.
          273.HZ  A( 4)=  .641RMSPSI,  A( 8)=  .653RMSPSI,  PHASE( 4 8)=    5.1DEG.
          273.HZ  A( 7)=  .595RMSPSI,  A( 8)=  .629RMSPSI,  PHASE( 7 8)=   -4.0DEG.
  3    F/A= .0613    ETAC= 49.6    TT5F= 2556.     PT5/PT2= 83.4    M2= .331    PSI= 25.58    PCI= 23.01
          270.HZ  A( 1)=  .299RMSPSI,  A( 4)=  .481RMSPSI,  PHASE( 1 4)=  100.0DEG.
          270.HZ  A( 4)=  .395RMSPSI,  A( 8)=  .398RMSPSI,  PHASE( 4 8)=    6.1DEG.
          270.HZ  A( 7)=  .405RMSPSI,  A( 8)=  .404RMSPSI,  PHASE( 7 8)=     .3DEG.
          277.HZ  A( 1)=  .153RMSPSI,  A( 4)=  .268RMSPSI,  PHASE( 1 4)=   96.8DEG.
          277.HZ  A( 4)=  .401RMSPSI,  A( 8)=  .390RMSPSI,  PHASE( 4 8)=    7.7DEG.
          277.HZ  A( 7)=  .527RMSPSI,  A( 8)=  .512RMSPSI,  PHASE( 7 8)=    1.0DEG.
  4    F/A= .0553    ETAC= 41.7    TT5F= 2230.     PT5/PT2= 82.5    M2= .355    PSI= 23.63    PCI= 21.27
  5    F/A= .0497    ETAC= 47.6    TT5F= 2314.     PT5/PT2= 82.3    M2= .350    PSI= 24.09    PCI= 21.49
          275.HZ  A( 1)=  .754RMSPSI,  A( 4)= 1.201RMSPSI,  PHASE( 1 4)=  100.0DEG.
          275.HZ  A( 4)=  .248RMSPSI,  A( 8)=  .240RMSPSI,  PHASE( 4 8)=   10.0DEG.
          275.HZ  A( 7)= 1.335RMSPSI,  A( 8)= 1.242RMSPSI,  PHASE( 7 8)=    6.0DEG.
  6    F/A= .0442    ETAC= 41.9    TT5F= 2060.     PT5/PT2= 81.5    M2= .373    PSI= 22.58    PCI= 19.76
          245.HZ  A( 1)=  .393RMSPSI,  A( 4)=  .589RMSPSI,  PHASE( 1 4)=   79.7DEG.
          245.HZ  A( 4)=  .612RMSPSI,  A( 8)=  .407RMSPSI,  PHASE( 4 8)=  -19.0DEG.
          245.HZ  A( 7)=  .438RMSPSI,  A( 8)=  .330RMSPSI,  PHASE( 7 8)=  -19.0DEG.
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8IN.CHAMB.   5.375INLET    .35Y F.M.     40% NOZ.      TUBE INJ.
   1   F/A=0.0000     ETAC=  0.0     TT5F=   522.     PT5/PT2= 67.3     M2= .386     PSI= 12.49     PCI=  9.46
   2   F/A=0.0000     ETAC=  0.0     TT5F=   934.     PT5/PT2= 68.0     M2= .397     PSI= 16.66     PCI= 12.62
   3   F/A=0.0000     ETAC=  0.0     TT5F=   933.     PT5/PT2= 68.0     M2= .396     PSI= 17.03     PCI= 12.95
   4   F/A= .0653     ETAC= 71.5     TT5F=  3312.     PT5/PT2= 88.2     M2= .235     PSI= 28.79     PCI= 26.06
   5   F/A= .0603     ETAC= 74.2     TT5F=  3313.     PT5/PT2= 88.1     M2= .236     PSI= 28.66     PCI= 25.93
   6   F/A= .0555     ETAC= 77.1     TT5F=  3293.     PT5/PT2= 88.0     M2= .238     PSI= 28.43     PCI= 25.71
   7   F/A= .0502     ETAC= 73.7     TT5F=  3046.     PT5/PT2= 86.8     M2= .245     PSI= 27.45     PCI= 24.83
          134.HZ  A( 1)= 1.834RMSPSI,  A( 4)= 5.116RMSPSI,  PHASE( 1 4)=  20.60DEG.
          134.HZ  A( 4)= 4.993RMSPSI,  A( 8)= 4.623RMSPSI,  PHASE( 4 8)=  16.20DEG.
          134.HZ  A( 7)= 5.055RMSPSI,  A( 8)= 4.700RMSPSI,  PHASE( 7 8)=   7.00DEG.
          269.HZ  A( 1)=  .751RMSPSI,  A( 4)= 1.396RMSPSI,  PHASE( 1 4)=  52.80DEG.
          269.HZ  A( 4)= 1.430RMSPSI,  A( 8)=  .743RMSPSI,  PHASE( 4 8)=  18.70DEG.
          269.HZ  A( 7)= 1.271RMSPSI,  A( 8)=  .732RMSPSI,  PHASE( 7 8)=  17.00DEG.
   8   F/A= .0460     ETAC= 75.2     TT5F=  2957.     PT5/PT2= 86.3     M2= .248     PSI= 27.00     PCI= 24.31
          133.HZ  A( 1)= 1.711RMSPSI,  A( 4)= 4.793RMSPSI,  PHASE( 1 4)=  23.00DEG.
          133.HZ  A( 4)= 4.747RMSPSI,  A( 8)= 4.300RMSPSI,  PHASE( 4 8)=  17.20DEG.
          133.HZ  A( 7)= 4.654RMSPSI,  A( 8)= 4.300RMSPSI,  PHASE( 7 8)=   8.10DEG.
          265.HZ  A( 1)=  .649RMSPSI,  A( 4)= 1.355RMSPSI,  PHASE( 1 4)=  53.90DEG.
          265.HZ  A( 4)= 1.376RMSPSI,  A( 8)=  .717RMSPSI,  PHASE( 4 8)=  16.10DEG.
          265.HZ  A( 7)= 1.236RMSPSI,  A( 8)=  .709RMSPSI,  PHASE( 7 8)=  14.90DEG.
   9   F/A= .0418     ETAC= 78.5     TT5F=  2899.     PT5/PT2= 86.6     M2= .254     PSI= 26.41     PCI= 23.82
          130.HZ  A( 1)= 1.281RMSPSI,  A( 4)= 3.591RMSPSI,  PHASE( 1 4)=  26.70DEG.
          130.HZ  A( 4)= 3.560RMSPSI,  A( 8)= 3.113RMSPSI,  PHASE( 4 8)=  18.20DEG.
          130.HZ  A( 7)= 3.452RMSPSI,  A( 8)= 3.159RMSPSI,  PHASE( 7 8)=   8.80DEG.
          259.HZ  A( 1)=  .368RMSPSI,  A( 4)=  .852RMSPSI,  PHASE( 1 4)=  62.90DEG.
          259.HZ  A( 4)=  .852RMSPSI,  A( 8)=  .462RMSPSI,  PHASE( 4 8)=  16.10DEG.
          259.HZ  A( 7)=  .815RMSPSI,  A( 8)=  .462RMSPSI,  PHASE( 7 8)=  14.10DEG.
  10   F/A= .0357     ETAC= 78.1     TT5F=  2665.     PT5/PT2= 86.0     M2= .267     PSI= 25.16     PCI= 22.62
  11   F/A= .0315     ETAC= 83.6     TT5F=  2604.     PT5/PT2= 85.4     M2= .271     PSI= 24.88     PCI= 21.99
  12   F/A= .0264     ETAC= 82.9     TT5F=  2368.     PT5/PT2= 84.3     M2= .284     PSI= 23.75     PCI= 20.80
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8IN.CHAMB.   5.375INLET   .35Y F.H.    60% NOZ.     TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  978.    PT5/PT2= 46.9    M2= .402    PSI= 24.92    PCI= 12.40
  2   F/A= .0657   ETAC= 70.2    TT5F= 3274.    PT5/PT2= 77.1    M2= .319    PSI= 31.56    PCI= 24.89
          196.HZ   A( 1)=  .435RMSPSI,  A( 4)=  .875RMSPSI,  PHASE( 1 4)=  65.0DEG.
          196.HZ   A( 4)=  .834RMSPSI,  A( 8)=  .579RMSPSI,  PHASE( 4 8)=  23.7DEG.
  3   F/A= .0609   ETAC= 72.0    TT5F= 3255.    PT5/PT2= 77.0    M2= .322    PSI= 31.29    PCI= 24.8[illegible]
          200.HZ   A( 1)=  .526RMSPSI,  A( 4)= 1.054RMSPSI,  PHASE( 1 4)=  66.5DEG.
          200.HZ   A( 4)= 1.014RMSPSI,  A( 8)=  .707RMSPSI,  PHASE( 4 8)=  22.9DEG.
          206.HZ   A( 1)=  .425RMSPSI,  A( 4)=  .915RMSPSI,  PHASE( 1 4)=  68.5DEG.
          206.HZ   A( 4)=  .892RMSPSI,  A( 8)=  .692RMSPSI,  PHASE( 4 8)=  20.5DEG.
  4   F/A= .0560   ETAC= 73.8    TT5F= 3213.    PT5/PT2= 76.7    M2= .327    PSI= 30.94    PCI= 24.55
          204.HZ   A( 1)=  .277RMSPSI,  A( 4)=  .590RMSPSI,  PHASE( 1 4)=  69.0DEG.
          204.HZ   A( 4)=  .669RMSPSI,  A( 8)=  .504RMSPSI,  PHASE( 4 8)=  23.4DEG.
  5   F/A= .0509   ETAC= 76.0    TT5F= 3140.    PT5/PT2= 76.4    M2= .330    PSI= 30.58    PCI= 24.17
          204.HZ   A( 1)=  .234RMSPSI,  A( 4)=  .482RMSPSI,  PHASE( 1 4)=  69.8DEG.
  6   F/A= .0464   ETAC= 76.2    TT5F= 3008.    PT5/PT2= 75.5    M2= .337    PSI= 29.94    PCI= 23.46
  7   F/A= .0397   ETAC= 69.7    TT5F= 2626.    PT5/PT2= 73.2    M2= .355    PSI= 28.40    PCI= 21.97
  8   F/A= .0358   ETAC= 85.6    TT5F= 2836.    PT5/PT2= 73.9    M2= .344    PSI= 29.34    PCI= 22.25
  9   F/A= .0302   ETAC= 82.6    TT5F= 2532.    PT5/PT2= 72.0    M2= .360    PSI= 28.06    PCI= 20.90
 10   F/A= .027[illegible]   ETAC= 42.3    TT5F= 1718.    PT5/PT2= 63.2    M2= .394    PSI= 25.54    PCI= 17.56
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8IN.CHAMB.   5.375INLET   .35Y F.H.    L/D=1.5      UNIF.INJ.
    1    F/A=0.0000    ETAC=  0.0    TT5F=  972.    PT5/PT2= 55.8    M2= .399    PSI= 21.37    PCI= 12.17
    2    F/A= .0639    ETAC= 80.3    TT5F= 3574.    PT5/PT2= 83.2    M2= .269    PSI= 32.09    PCI= 28.06
    3    F/A= .0592    ETAC= 77.3    TT5F= 3390.    PT5/PT2= 82.7    M2= .279    PSI= 30.89    PCI= 26.90
    4    F/A= .0538    ETAC= 73.4    TT5F= 3143.    PT5/PT2= 81.8    M2= .290    PSI= 29.67    PCI= 25.61
    5    F/A= .0490    ETAC= 73.1    TT5F= 3003.    PT5/PT2= 81.2    M2= .296    PSI= 29.14    PCI= 24.95
    6    F/A= .0449    ETAC= 70.7    TT5F= 2816.    PT5/PT2= 80.0    M2= .304    PSI= 28.43    PCI= 24.27
          277.HZ  A( 1)=  .464RMSPSI,  A( 4)=  .780RMSPSI,  PHASE( 1 4)=   80.5DEG.
          277.HZ  A( 4)=  .769RMSPSI,  A( 8)=  .593RMSPSI,  PHASE( 4 8)=   -1.3DEG.
          277.HZ  A( 7)=  .678RMSPSI,  A( 8)=  .513RMSPSI,  PHASE( 7 8)=   -8.3DEG.
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c. Low Frequency Combustion Instabilities for a Twelve Inch Diameter Combustion Chamber

```
12IN.CHAMB   6IN. INLET    NO F.HOLD.   BASELINE     UNIF.INJ.
 1   F/A=0.0000    ETAC= 0.0      TT5F=  998.    PT5/PT2= 49.3     M2= .888    PSI= 10.70    PCI=  6.67
 2   F/A= .0662    ETAC= 34.1     TT5F= 2099.    PT5/PT2= 73.7     M2= .744    PSI= 12.98    PCI= 12.48
 3   F/A= .0615    ETAC= 34.1     TT5F= 2065.    PT5/PT2= 73.5     M2= .763    PSI= 12.65    PCI= 12.17
 4   F/A= .0543    ETAC= 31.4     TT5F= 1917.    PT5/PT2= 71.8     M2= .816    PSI= 11.77    PCI= 11.32
        390.HZ  A( 4)=  .170RMSPSI,  A( 8)=  .119RMSPSI,  PHASE( 4 8)= -152.4DEG.
 5   F/A= .0493    ETAC= 33.7     TT5F= 1920.    PT5/PT2= 71.5     M2= .812    PSI= 11.85    PCI= 11.49
        379.HZ  A( 4)=  .680RMSPSI,  A( 8)=  .472RMSPSI,  PHASE( 4 8)= -155.2DEG.
 6   F/A= .0446    ETAC= 41.8     TT5F= 2064.    PT5/PT2= 71.9     M2= .754    PSI= 12.85    PCI= 12.35
        355.HZ  A( 4)=  .909RMSPSI,  A( 8)=  .624RMSPSI,  PHASE( 4 8)= -166.0DEG.
 7   F/A= .0411    ETAC= 40.2     TT5F= 1961.    PT5/PT2= 70.6     M2= .777    PSI= 12.41    PCI= 11.99
        346.HZ  A( 4)=  .522RMSPSI,  A( 8)=  .339RMSPSI,  PHASE( 4 8)= -173.5DEG.
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```
12IN.CHAMB   6IN. INLET    NO F.HOLD.    BASELINE     TUBE INJ.
   1     F/A=0.0000    ETAC=  0.0    TT5F=   963.    PT5/PT2= 47.9    M2= .839    PSI= 11.40    PCI=  6.72
   2     F/A= .0657    ETAC= 70.2    TT5F=  3265.    PT5/PT2= 79.7    M2= .560    PSI= 17.75    PCI= 16.77
   3     F/A= .0590    ETAC= 75.3    TT5F=  3311.    PT5/PT2= 79.2    M2= .554    PSI= 17.94    PCI= 17.07
   4     F/A= .0542    ETAC= 75.8    TT5F=  3213.    PT5/PT2= 79.0    M2= .570    PSI= 17.40    PCI= 16.73
   5     F/A= .0485    ETAC= 74.8    TT5F=  3020.    PT5/PT2= 78.7    M2= .598    PSI= 16.45    PCI= 15.94
   6     F/A= .0456    ETAC= 75.2    TT5F=  2942.    PT5/PT2= 78.2    M2= .610    PSI= 16.15    PCI= 15.70
   7     F/A= .0400    ETAC= 61.1    TT5F=  2426.    PT5/PT2= 75.1    M2= .691    PSI= 14.13    PCI= 13.47
            368.HZ  A( 4)=  .717RMSPSI,  A( 8)=  .452RMSPSI,  PHASE( 4 8)=  179.3DEG.
   8     F/A= .0361    ETAC= 63.9    TT5F=  2368.    PT5/PT2= 74.8    M2= .707    PSI= 13.76    PCI= 13.20
   9     F/A= .0317    ETAC= 61.5    TT5F=  2180.    PT5/PT2= 72.8    M2= .744    PSI= 13.02    PCI= 12.28
  10     F/A= .0258    ETAC= 59.6    TT5F=  1954.    PT5/PT2= 69.9    M2= .792    PSI= 12.18    PCI= 11.09
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```
12IN.CHAMB    6IN. INLET    NO F.HOLD.    TTO=750K      UNIF.INJ.
    1     F/A=0.0000     ETAC=  0.0     TT5F=  760.     PT5/PT2= 49.1     M2= .829     PSI=  9.68     PCI=  5.70
    2     F/A= .0655     ETAC= 30.7     TT5F= 1780.     PT5/PT2= 75.6     M2= .685     PSI= 12.30     PCI= 11.86
             331.HZ  A( 4)=  .675RMSPSI,  A( 8)=  .390RMSPSI,  PHASE( 4 8)= -171.0DEG.
    3     F/A= .0610     ETAC= 31.3     TT5F= 1770.     PT5/PT2= 75.3     M2= .693     PSI= 12.15     PCI= 11.69
             331.HZ  A( 4)=  .968RMSPSI,  A( 8)=  .563RMSPSI,  PHASE( 4 8)= -170.0DEG.
    4     F/A= .0546     ETAC= 31.9     TT5F= 1723.     PT5/PT2= 74.3     M2= .706     PSI= 11.92     PCI= 11.45
             326.HZ  A( 4)= 1.029RMSPSI,  A( 8)=  .620RMSPSI,  PHASE( 4 8)= -172.0DEG.
    5     F/A= .0506     ETAC= 31.2     TT5F= 1655.     PT5/PT2= 73.3     M2= .723     PSI= 11.58     PCI= 11.06
             321.HZ  A( 4)=  .948RMSPSI,  A( 8)=  .564RMSPSI,  PHASE( 4 8)= -174.4DEG.
    6     F/A= .0460     ETAC= 28.2     TT5F= 1513.     PT5/PT2= 71.0     M2= .766     PSI= 10.88     PCI= 10.42
             310.HZ  A( 4)=  .478RMSPSI,  A( 8)=  .248RMSPSI,  PHASE( 4 8)=  176.9DEG.
```

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12IN.CHAMB    6IN. INLET    NO F.MOLD.    TTO=750R      TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F=  758.     PT5/PT2= 49.0     M2= .832     PSI=  9.90     PCI=  5.84
   2    F/A= .0659    ETAC= 62.1     TT5F= 2850.     PT5/PT2= 81.1     M2= .514     PSI= 16.68     PCI= 15.90
            109.HZ  A( 4)=  .512RMSPSI,  A( 8)=  .422RMSPSI,  PHASE( 4 8)=   14.9DEG.
   3    F/A= .0591    ETAC= 64.7     TT5F= 2826.     PT5/PT2= 81.0     M2= .521     PSI= 16.46     PCI= 15.67
            113.HZ  A( 4)=  .441RMSPSI,  A( 8)=  .364RMSPSI,  PHASE( 4 8)=   13.3DEG.
   4    F/A= .0547    ETAC= 65.9     TT5F= 2768.     PT5/PT2= 80.8     M2= .531     PSI= 16.14     PCI= 15.42
            111.HZ  A( 4)=  .405RMSPSI,  A( 8)=  .331RMSPSI,  PHASE( 4 8)=   11.7DEG.
   5    F/A= .0496    ETAC= 65.1     TT5F= 2614.     PT5/PT2= 80.0     M2= .551     PSI= 15.53     PCI= 14.79
   6    F/A= .0455    ETAC= 67.1     TT5F= 2551.     PT5/PT2= 79.7     M2= .561     PSI= 15.24     PCI= 14.70
   7    F/A= .0409    ETAC= 70.1     TT5F= 2480.     PT5/PT2= 79.1     M2= .572     PSI= 14.90     PCI= 14.29
   8    F/A= .0361    ETAC= 71.2     TT5F= 2332.     PT5/PT2= 78.0     M2= .593     PSI= 14.33     PCI= 13.66
   9    F/A= .0313    ETAC= 52.0     TT5F= 1771.     PT5/PT2= 73.6     M2= .700     PSI= 11.99     PCI= 11.13
            340.HZ  A( 4)=  .865RMSPSI,  A( 8)=  .518RMSPSI,  PHASE( 4 8)=  175.8DEG.
  10    F/A= .0261    ETAC= 60.4     TT5F= 1760.     PT5/PT2= 73.5     M2= .710     PSI= 11.81     PCI= 11.19
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12IN.CHAMB    6IN. INLET    NO F.HOLD.    LOW FLOW      UNIF.INJ.
  1     F/A=0.0000     ETAC=  0.0     TT5F= 1057.     PT5/PT2= 51.5     M2= .840     PSI=  6.92     PCI=  4.44
  2     F/A= .0636     ETAC= 36.4     TT5F= 2146.     PT5/PT2= 74.2     M2= .738     PSI=  8.02     PCI=  7.63
           373.HZ   A( 4)=  .518RMSPSI,   A( 8)=  .376RMSPSI,   PHASE( 4 8)= -155.6DEG.
  3     F/A= .0590     ETAC= 37.9     TT5F= 2146.     PT5/PT2= 74.3     M2= .738     PSI=  7.96     PCI=  7.59
           370.HZ   A( 4)=  .547RMSPSI,   A( 8)=  .399RMSPSI,   PHASE( 4 8)= -159.6DEG.
  4     F/A= .0527     ETAC= 40.8     TT5F= 2160.     PT5/PT2= 73.9     M2= .739     PSI=  8.00     PCI=  7.63
           361.HZ   A( 4)=  .570RMSPSI,   A( 8)=  .395RMSPSI,   PHASE( 4 8)= -162.1DEG.
  5     F/A= .0495     ETAC= 41.4     TT5F= 2132.     PT5/PT2= 73.3     M2= .747     PSI=  7.90     PCI=  7.54
           354.HZ   A( 4)=  .601RMSPSI,   A( 8)=  .408RMSPSI,   PHASE( 4 8)= -168.4DEG.
  6     F/A= .0442     ETAC= 36.0     TT5F= 1907.     PT5/PT2= 70.5     M2= .797     PSI=  7.34     PCI=  6.99
           348.HZ   A( 4)=  .296RMSPSI,   A( 8)=  .185RMSPSI,   PHASE( 4 8)= -178.2DEG.
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12IN.CHAMB   6IN. INLET    NO F.HOLD.    LOW FLOW      TUBE INJ.
   1     F/A=0.0000     ETAC=  0.0     TT5F= 1062.     PT5/PT2= 51.4     M2= .841     PSI=  6.90     PCI=  4.44
   2     F/A= .0640     ETAC= 71.9     TT5F= 3277.     PT5/PT2= 78.8     M2= .546     PSI= 11.05     PCI= 10.21
            96.HZ  A( 4)= 1.557RMSPSI,  A( 8)= 1.046RMSPSI,  PHASE( 4 8)=   14.8DEG.
   3     F/A= .0589     ETAC= 75.2     TT5F= 3291.     PT5/PT2= 80.0     M2= .562     PSI= 10.70     PCI= 10.18
           106.HZ  A( 4)=  .462RMSPSI,  A( 8)=  .351RMSPSI,  PHASE( 4 8)=   12.8DEG.
   4     F/A= .0533     ETAC= 79.0     TT5F= 3269.     PT5/PT2= 79.6     M2= .565     PSI= 10.62     PCI= 10.05
   5     F/A= .0494     ETAC= 79.1     TT5F= 3158.     PT5/PT2= 79.4     M2= .580     PSI= 10.32     PCI=  9.85
   6     F/A= .0450     ETAC= 76.3     TT5F= 2943.     PT5/PT2= 76.8     M2= .615     PSI=  9.67     PCI=  9.43
   7     F/A= .0407     ETAC= 59.8     TT5F= 2407.     PT5/PT2= 75.5     M2= .697     PSI=  8.46     PCI=  7.99
           363.HZ  A( 4)=  .570RMSPSI,  A( 8)=  .364RMSPSI,  PHASE( 4 8)= -179.5DEG.
   8     F/A= .0348     ETAC= 61.0     TT5F= 2262.     PT5/PT2= 74.1     M2= .727     PSI=  8.08     PCI=  7.62
           373.HZ  A( 4)=  .478RMSPSI,  A( 8)=  .313RMSPSI,  PHASE( 4 8)= -178.2DEG.
   9     F/A= .0356     ETAC= 60.1     TT5F= 2266.     PT5/PT2= 74.1     M2= .727     PSI=  8.08     PCI=  7.62
           370.HZ  A( 4)=  .490RMSPSI,  A( 8)=  .321RMSPSI,  PHASE( 4 8)= -177.9DEG.
  10     F/A= .0310     ETAC= 61.0     TT5F= 2148.     PT5/PT2= 72.8     M2= .756     PSI=  7.77     PCI=  7.23
  11     F/A= .0260     ETAC= 64.5     TT5F= 2041.     PT5/PT2= 71.2     M2= .778     PSI=  7.53     PCI=  6.90
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12IN.CHAMB   7IN. INLET   NO F.HOLD.   BASELINE     UNIF.INJ.
  1   F/A= .0577   ETAC= -1.7    TT5F=  957.    PT5/PT2= 57.1   M2=1.496   PSI=  4.20   PCI=  6.96
  2   F/A= .0656   ETAC= 84.3    TT5F= 3720.    PT5/PT2= 89.4   M2= .391   PSI= 18.83   PCI= 18.42
        109.HZ  A( 4)= 1.308RMSPSI,  A( 8)= 1.392RMSPSI,  PHASE( 4 8)=   18.4DEG.
        108.HZ  A( 7)= 1.293RMSPSI,  A( 8)= 1.432RMSPSI,  PHASE( 7 8)=    8.1DEG.
  3   F/A= .0609   ETAC= 88.5    TT5F= 3764.    PT5/PT2= 89.4   M2= .390   PSI= 18.90   PCI= 18.50
  4   F/A= .0548   ETAC= 87.2    TT5F= 3561.    PT5/PT2= 89.3   M2= .407   PSI= 18.14   PCI= 17.80
  5   F/A= .0503   ETAC= 80.3    TT5F= 3229.    PT5/PT2= 88.5   M2= .433   PSI= 16.97   PCI= 16.67
  6   F/A= .0446   ETAC= 85.9    TT5F= 3188.    PT5/PT2= 88.0   M2= .438   PSI= 16.85   PCI= 16.42
  7   F/A= .0402   ETAC= 70.5    TT5F= 2656.    PT5/PT2= 86.7   M2= .491   PSI= 15.00   PCI= 14.75
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12IN.CHAMB    7IN. INLET    NO F.HOLD.    BASELINE      TUBE INJ.
   1     F/A=0.0000     ETAC=  0.0     TT5F=  977.     PT5/PT2= 58.0     M2=1.470     PSI=  4.30     PCI=  6.97
   2     F/A= .0603     ETAC= 71.0     TT5F= 3205.     PT5/PT2= 87.3     M2= .425     PSI= 17.47     PCI= 16.48
           113.HZ  A( 1)= 1.405RMSPSI,  A( 4)= 1.834RMSPSI,  PHASE( 1 4)=   50.3DEG.
           113.HZ  A( 4)= 1.803RMSPSI,  A( 8)= 1.536RMSPSI,  PHASE( 4 8)=   16.9DEG.
           113.HZ  A( 7)= 1.557RMSPSI,  A( 8)= 1.557RMSPSI,  PHASE( 7 8)=    2.8DEG.
   3     F/A= .0556     ETAC= 72.7     TT5F= 3158.     PT5/PT2= 88.0     M2= .437     PSI= 16.94     PCI= 16.29
           113.HZ  A( 1)= 1.305RMSPSI,  A( 4)= 1.711RMSPSI,  PHASE( 1 4)=   50.2DEG.
           111.HZ  A( 4)= 1.499RMSPSI,  A( 8)= 1.262RMSPSI,  PHASE( 4 8)=   17.9DEG.
           111.HZ  A( 7)= 1.305RMSPSI,  A( 8)= 1.364RMSPSI,  PHASE( 7 8)=    3.4DEG.
           223.HZ  A( 1)=  .601RMSPSI,  A( 4)=  .485RMSPSI,  PHASE( 1 4)=   81.8DEG.
           223.HZ  A( 4)=  .479RMSPSI,  A( 8)=  .257RMSPSI,  PHASE( 4 8)=  -18.7DEG.
           223.HZ  A( 7)=  .388RMSPSI,  A( 8)=  .265RMSPSI,  PHASE( 7 8)=  -17.1DEG.
   4     F/A= .0499     ETAC= 73.3     TT5F= 3031.     PT5/PT2= 87.5     M2= .449     PSI= 16.43     PCI= 15.84
           116.HZ  A( 1)=  .484RMSPSI,  A( 4)=  .592RMSPSI,  PHASE( 1 4)=   48.1DEG.
           116.HZ  A( 4)=  .620RMSPSI,  A( 8)=  .573RMSPSI,  PHASE( 4 8)=   16.4DEG.
           116.HZ  A( 7)=  .530RMSPSI,  A( 8)=  .579RMSPSI,  PHASE( 7 8)=    8.5DEG.
   5     F/A= .0449     ETAC= 74.0     TT5F= 2891.     PT5/PT2= 87.2     M2= .463     PSI= 15.85     PCI= 15.33
           118.HZ  A( 1)=  .174RMSPSI,  A( 4)=  .233RMSPSI,  PHASE( 1 4)=   46.9DEG.
         117.5HZ  A( 4)=  .248RMSPSI   A( 8)=  .223RMSPSI
           118.HZ  A( 7)=  .223RMSPSI,  A( 8)=  .213RMSPSI,  PHASE( 7 8)=   14.6DEG.
   6     F/A= .0406     ETAC= 73.1     TT5F= 2733.     PT5/PT2= 87.0     M2= .484     PSI= 15.13     PCI= 14.67
   7     F/A= .0360     ETAC= 73.5     TT5F= 2572.     PT5/PT2= 86.6     M2= .503     PSI= 14.51     PCI= 14.24
   8     F/A= .0309     ETAC= 74.8     TT5F= 2414.     PT5/PT2= 86.7     M2= .537     PSI= 13.60     PCI= 13.66
   9     F/A= .0252     ETAC= 68.8     TT5F= 2082.     PT5/PT2= 86.9     M2= .609     PSI= 11.84     PCI= 12.27
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12IN.CHAMB   7IN. INLET   NO F.HOLD.   TTO=750R     UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0    TT5F=  540.     PT5/PT2= 60.4    M2=1.442    PSI=  3.81    PCI=  6.18
  2    F/A= .0653    ETAC= 61.1    TT5F= 3007.     PT5/PT2= 88.4    M2= .390    PSI= 16.35    PCI= 15.86
          90.HZ  A( 4)= 2.774RMSPSI,  A( 8)= 2.712RMSPSI,  PHASE( 4 8)=  13.7DEG.
         180.HZ  A( 4)=  .518RMSPSI,  A( 8)=  .301RMSPSI,  PHASE( 4 8)=  51.2DEG.
  3    F/A= .0613    ETAC= 55.9    TT5F= 2752.     PT5/PT2= 88.3    M2= .413    PSI= 15.36    PCI= 15.04
          91.HZ  A( 4)= 2.651RMSPSI,  A( 8)= 2.574RMSPSI,  PHASE( 4 8)=  14.1DEG.
         183.HZ  A( 4)=  .541RMSPSI,  A( 8)=  .347RMSPSI,  PHASE( 4 8)=  46.3DEG.
  4    F/A= .0550    ETAC= 42.1    TT5F= 2102.     PT5/PT2= 88.0    M2= .484    PSI= 13.03    PCI= 13.00
          94.HZ  A( 4)= 2.219RMSPSI,  A( 8)= 2.019RMSPSI,  PHASE( 4 8)=  15.3DEG.
         188.HZ  A( 4)=  .492RMSPSI,  A( 8)=  .288RMSPSI,  PHASE( 4 8)=  31.3DEG.
  5    F/A= .0509    ETAC= 43.7    TT5F= 2068.     PT5/PT2= 87.6    M2= .487    PSI= 12.92    PCI= 12.83
          95.HZ  A( 4)= 1.711RMSPSI,  A( 8)= 1.490RMSPSI,  PHASE( 4 8)=  15.0DEG.
         190.HZ  A( 4)=  .291RMSPSI,  A( 8)= 1.526RMSPSI,  PHASE( 4 8)=  24.8DEG.
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12IN.CHAMB   7IN. INLET    NO F.HOLD.    TTO=750R      TUBE INJ.
   1    F/A=0.0000     ETAC=  0.0     TT5F=  774.     PT5/PT2= 60.2     M2=1.456     PSI=  3.76     PCI=  6.13
   2    F/A= .0408     ETAC= 66.4     TT5F= 2391.     PT5/PT2= 87.3     M2= .439     PSI= 14.50     PCI= 13.72
            103.HZ  A( 4)= 2.712RMSPSI,  A( 8)= 2.389RMSPSI,  PHASE( 4 8)=   13.6DEG.
            205.HZ  A( 4)=  .775RMSPSI,  A( 8)=  .402RMSPSI,  PHASE( 4 8)=   -2.3DEG.
   3    F/A= .0362     ETAC= 59.5     TT5F= 2080.     PT5/PT2= 86.3     M2= .479     PSI= 13.21     PCI= 12.56
             99.HZ  A( 4)= 2.928RMSPSI,  A( 8)= 2.558RMSPSI,  PHASE( 4 8)=   16.1DEG.
            198.HZ  A( 4)= 1.005RMSPSI,  A( 8)=  .432RMSPSI,  PHASE( 4 8)=   14.6DEG.
   4    F/A= .0317     ETAC= 58.2     TT5F= 1909.     PT5/PT2= 86.5     M2= .513     PSI= 12.26     PCI= 11.95
            103.HZ  A( 4)= 1.819RMSPSI,  A( 8)= 1.572RMSPSI,  PHASE( 4 8)=   13.5DEG.
            204.HZ  A( 4)=  .364RMSPSI,  A( 8)=  .162RMSPSI,  PHASE( 4 8)=    7.8DEG.
   5    F/A= .0256     ETAC= 71.0     TT5F= 1919.     PT5/PT2= 87.5     M2= .523     PSI= 12.02     PCI= 12.05
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12IN.CHAMB   7IN. INLET    NO F.HOLD.    TTO=1250R     UNIF.INJ.
   1    F/A=0.0000     ETAC=  0.0     TT5F= 1210.     PT5/PT2= 55.9     M2=1.525     PSI=  4.60     PCI=  7.48
   2    F/A= .0643     ETAC= 83.4     TT5F= 3781.     PT5/PT2= 89.0     M2= .442     PSI= 18.89     PCI= 18.80
           114.HZ   A( 4)= 1.942RMSPSI,   A( 8)= 1.772RMSPSI,   PHASE( 4 8)=   15.60EG.
           229.HZ   A( 4)=  .347RMSPSI,   A( 8)=  .183RMSPSI,   PHASE( 4 8)=   52.6DEG.
   3    F/A= .0602     ETAC= 81.6     TT5F= 3654.     PT5/PT2= 88.5     M2= .451     PSI= 18.43     PCI= 18.37
           114.HZ   A( 4)= 1.330RMSPSI,   A( 8)= 1.194RMSPSI,   PHASE( 4 8)=   17.3DEG.
   4    F/A= .0555     ETAC= 88.2     TT5F= 3742.     PT5/PT2= 88.6     M2= .449     PSI= 18.32     PCI= 18.12
   5    F/A= .0509     ETAC= 87.4     TT5F= 3595.     PT5/PT2= 88.2     M2= .465     PSI= 17.69     PCI= 17.51
   6    F/A= .0455     ETAC= 85.3     TT5F= 3371.     PT5/PT2= 87.5     M2= .487     PSI= 17.02     PCI= 16.79
   7    F/A= .0409     ETAC= 84.3     TT5F= 3176.     PT5/PT2= 87.6     M2= .510     PSI= 16.14     PCI= 16.11
   8    F/A= .0360     ETAC= 80.9     TT5F= 2919.     PT5/PT2= 87.8     M2= .552     PSI= 14.90     PCI= 15.27
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12IN.CHAMB  7IN. INLET   NO F.HULD.   LOW FLOW     TUBE INJ.
 1  F/A=0.0000   ETAC=  0.0    TT5F= 1033.   PT5/PT2= 58.5    M2=1.518    PSI=  2.49    PCI=  4.44
 2  F/A= .0464   ETAC= 69.7    TT5F= 2856.   PT5/PT2= 86.1    M2= .462    PSI=  9.62    PCI=  8.96
        98.HZ  A( 4)= 2.127RMSPSI,  A( 8)= 1.572RMSPSI,  PHASE( 4 8)=   14.4DEG.
 3  F/A= .0461   ETAC= 70.6    TT5F= 2837.   PT5/PT2= 86.3    M2= .462    PSI=  9.63    PCI=  8.96
       100.HZ  A( 4)= 2.096RMSPSI,  A( 8)= 1.618RMSPSI,  PHASE( 4 8)=   15.2DEG.
       201.HZ  A( 4)=  .629RMSPSI,  A( 8)=  .371RMSPSI,  PHASE( 4 8)=  -37.10EG.
 4  F/A= .0407   ETAC= 72.8    TT5F= 2721.   PT5/PT2= 87.5    M2= .486    PSI=  9.10    PCI=  8.71
       105.HZ  A( 4)= 1.429RMSPSI,  A( 8)= 1.162RMSPSI,  PHASE( 4 8)=   14.7DEG.
 5  F/A= .0358   ETAC= 73.4    TT5F= 2562.   PT5/PT2= 87.7    M2= .514    PSI=  8.61    PCI=  8.41
 6  F/A= .0314   ETAC= 75.9    TT5F= 2443.   PT5/PT2= 88.1    M2= .537    PSI=  8.17    PCI=  8.18
 7  F/A= .0260   ETAC= 78.7    TT5F= 2266.   PT5/PT2= 88.9    M2= .584    PSI=  7.48    PCI=  7.75
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12IN.CHAMB    7IN. INLET    NO F.MOLD.    40% NOZ.       UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F= 1019.    PT5/PT2= 75.2    M2=1.445    PSI=  3.49    PCI=  8.27
   2    F/A= .0659    ETAC= 82.0    TT5F= 3656.    PT5/PT2= 91.6    M2= .315    PSI= 18.84    PCI= 18.67
             99.HZ  A( 1)=  .354RMSPSI,  A( 4)=  .299RMSPSI,  PHASE( 1 4)=   49.4DEG.
             99.HZ  A( 4)=  .302RMSPSI,  A( 8)=  .328RMSPSI,  PHASE( 4 8)=   19.2DEG.
             99.HZ  A( 7)=  .284RMSPSI,  A( 8)=  .328RMSPSI,  PHASE( 7 8)=    7.6DEG.
   3    F/A= .0599    ETAC= 75.8    TT5F= 3343.    PT5/PT2= 91.2    M2= .332    PSI= 17.80    PCI= 17.70
             99.HZ  A( 1)=  .395RMSPSI,  A( 4)=  .353RMSPSI,  PHASE( 1 4)=   51.7DEG.
             99.HZ  A( 4)=  .302RMSPSI,  A( 8)=  .316RMSPSI,  PHASE( 4 8)=   20.4DEG.
             98.HZ  A( 7)=  .196RMSPSI,  A( 8)=  .227RMSPSI,  PHASE( 7 8)=   10.2DEG.
   4    F/A= .0548    ETAC= 67.7    TT5F= 2987.    PT5/PT2= 90.7    M2= .356    PSI= 16.58    PCI= 16.54
   5    F/A= .0503    ETAC= 65.8    TT5F= 2828.    PT5/PT2= 91.1    M2= .372    PSI= 15.85    PCI= 15.83
   6    F/A= .0453    ETAC= 92.0    TT5F= 3375.    PT5/PT2= 92.1    M2= .340    PSI= 17.46    PCI= 17.15
   7    F/A= .0402    E[illegible]C= 85.9    TT5F= 3019.    PT5/PT2= 91.2    M2= .362    PSI= 16.30    PCI= 16.08
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12IN.CHAMB   7IN. INLET   NO F.HOLD.   40% NOZ.      TUBE INJ.
  1   F/A=0.0000    ETAC=  0.0     TT5F=  973.     PT5/PT2= 72.8     M2=1.461    PSI=  3.47     PCI=  8.08
  2   F/A= .0642    ETAC= 73.0     TT5F= 3334.     PT5/PT2= 91.5     M2= .334    PSI= 17.89     PCI= 17.34
           110.HZ  A( 1)=  .442RMSPSI,  A( 4)=  .489RMSPSI,  PHASE( 1 4)=   47.6DEG.
           111.HZ  A( 4)=  .701RMSPSI,  A( 8)=  .632RMSPSI,  PHASE( 4 8)=   19.5DEG.
           111.HZ  A( 7)=  .607RMSPSI,  A( 8)=  .638RMSPSI,  PHASE( 7 8)=    6.7DEG.
           119.HZ  A( 1)=  .541RMSPSI,  A( 4)=  .590RMSPSI,  PHASE( 1 4)=   48.2DEG.
           119.HZ  A( 4)=  .482RMSPSI,  A( 8)=  .476RMSPSI,  PHASE( 4 8)=   24.0DEG.
           119.HZ  A( 7)=  .432RMSPSI,  A( 8)=  .487RMSPSI,  PHASE( 7 8)=   14.0DEG.
  3   F/A= .0608    ETAC= 72.9     TT5F= 3273.     PT5/PT2= 91.2     M2= .337    PSI= 17.65     PCI= 17.16
           113.HZ  A( 4)=  .644RMSPSI,  A( 8)=  .590RMSPSI,  PHASE( 4 8)=   20.8DEG.
           113.HZ  A( 7)=  .567RMSPSI,  A( 8)=  .603RMSPSI,  PHASE( 7 8)=    9.6DEG.
           116.HZ  A( 1)=  .495RMSPSI,  A( 4)=  .530RMSPSI,  PHASE( 1 4)=   45.9DEG.
           119.HZ  A( 4)=  .439RMSPSI,  A( 8)=  .433RMSPSI,  PHASE( 4 8)=   22.9DEG.
           119.HZ  A( 7)=  .385RMSPSI,  A( 8)=  .427RMSPSI,  PHASE( 7 8)=   14.3DEG.
  4   F/A= .0551    ETAC= 71.6     TT5F= 3110.     PT5/PT2= 91.2     M2= .349    PSI= 16.98     PCI= 16.61
           114.HZ  A( 1)=  .741RMSPSI,  A( 4)=  .814RMSPSI,  PHASE( 1 4)=   46.7DEG.
           113.HZ  A( 4)=  .482RMSPSI,  A( 8)=  .447RMSPSI,  PHASE( 4 8)=   22.3DEG.
           113.HZ  A( 7)=  .493RMSPSI,  A( 8)=  .513RMSPSI,  PHASE( 7 8)=   10.6DEG.
           116.HZ  A( 4)=  .290RMSPSI,  A( 8)=  .293RMSPSI,  PHASE( 4 8)=   23.5DEG.
           116.HZ  A( 7)=  .185RMSPSI,  A( 8)=  .199RMSPSI,  PHASE( 7 8)=    6.5DEG.
  5   F/A= .0500    ETAC= 70.2     TT5F= 2946.     PT5/PT2= 91.0     M2= .364    PSI= 16.33     PCI= 16.03
           111.HZ  A( 1)=  .268RMSPSI,  A( 4)=  .279RMSPSI,  PHASE( 1 4)=   44.9DEG.
           110.HZ  A( 4)=  .274RMSPSI,  A( 8)=  .270RMSPSI,  PHASE( 4 8)=   21.4DEG.
           110.HZ  A( 7)=  .193RMSPSI,  A( 8)=  .217RMSPSI,  PHASE( 7 8)=    9.9DEG.
           115.HZ  A( 1)=  .310RMSPSI,  A( 4)=  .327RMSPSI,  PHASE( 1 4)=   45.6DEG.
           116.HZ  A( 4)=  .339RMSPSI,  A( 8)=  .358RMSPSI,  PHASE( 4 8)=   20.6DEG.
           116.HZ  A( 7)=  .308RMSPSI,  A( 8)=  .351RMSPSI,  PHASE( 7 8)=    9.0DEG.
  6   F/A= .0453    ETAC= 70.7     TT5F= 2821.     PT5/PT2= 90.8     M2= .374    PSI= 15.83     PCI= 15.60
           113.HZ  A( 1)=  .339RMSPSI,  A( 4)=  .358RMSPSI,  PHASE( 1 4)=   47.1DEG.
           113.HZ  A( 4)=  .373RMSPSI,  A( 8)=  .384RMSPSI,  PHASE( 4 8)=   19.2DEG.
           113.HZ  A( 7)=  .362RMSPSI,  A( 8)=  .405RMSPSI,  PHASE( 7 8)=    8.8DEG.
           119.HZ  A( 1)=  .134RMSPSI,  A( 4)=  .156RMSPSI,  PHASE( 1 4)=   47.3DEG.
           119.HZ  A( 4)=  .162RMSPSI,  A( 8)=  .171RMSPSI,  PHASE( 4 8)=   17.3DEG.
           119.HZ  A( 7)=  .154RMSPSI,  A( 8)=  .176RMSPSI,  PHASE( 7 8)=    8.8DEG.
  7   F/A= .0416    ETAC= 71.5     TT5F= 2725.     PT5/PT2= 90.7     M2= .383    PSI= 15.40     PCI= 15.19
           111.HZ  A( 1)=  .233RMSPSI,  A( 4)=  .268RMSPSI,  PHASE( 1 4)=   45.5DEG.
           111.HZ  A( 4)=  .259RMSPSI,  A( 8)=  .253RMSPSI,  PHASE( 4 8)=   17.0DEG.
           111.HZ  A( 7)=  .233RMSPSI,  A( 8)=  .267RMSPSI,  PHASE( 7 8)=   10.5DEG.
           119.HZ  A( 1)=  .120RMSPSI,  A( 4)=  .136RMSPSI,  PHASE( 1 4)=   48.1DEG.
           119.HZ  A( 4)=  .165RMSPSI,  A( 8)=  .165RMSPSI,  PHASE( 4 8)=   19.9DEG.
           119.HZ  A( 7)=  .136RMSPSI,  A( 8)=  .162RMSPSI,  PHASE( 7 8)=    9.6DEG.
  8   F/A= .0362    ETAC= 72.6     TT5F= 2562.     PT5/PT2= 90.5     M2= .399    PSI= 14.74     PCI= 14.54
           403.HZ  A( 1)=  .324RMSPSI,  A( 4)=  .257RMSPSI,  PHASE( 1 4)=  153.8DEG.
           401.HZ  A( 4)=  .364RMSPSI,  A( 8)=  .374RMSPSI,  PHASE( 4 8)= -144.6DEG.
           401.HZ  A( 7)=  .040RMSPSI,  A( 8)=  .274RMSPSI,  PHASE( 7 8)=  142.8DEG.
  9   F/A= .0309    ETAC= 72.4     TT5F= 2362.     PT5/PT2= 90.1     M2= .421    PSI= 13.97     PCI= 13.80
           404.HZ  A( 1)=  .447RMSPSI,  A( 4)=  .356RMSPSI,  PHASE( 1 4)=  168.6DEG.
           404.HZ  A( 4)=  .470RMSPSI,  A( 8)=  .467RMSPSI,  PHASE( 4 8)= -151.9DEG.
           403.HZ  A( 7)=  .100RMSPSI,  A( 8)=  .507RMSPSI,  PHASE( 7 8)=  155.0DEG.
 10   F/A= .0264    ETAC= 73.1     TT5F= 2191.     PT5/PT2= 90.1     M2= .444    PSI= 13.20     PCI= 13.15
           408.HZ  A( 1)=  .173RMSPSI,  A( 4)=  .146RMSPSI,  PHASE( 1 4)= -175.2DEG.
           409.HZ  A( 4)=  .129RMSPSI,  A( 8)=  .125RMSPSI,  PHASE( 4 8)= -153.2DEG.
           409.HZ  A( 7)=  .017RMSPSI,  A( 8)=  .120RMSPSI,  PHASE( 7 8)=  170.1DEG.
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12IN.CHAMB    7IN. INLET    NO F.HOLD.    60% NOZ.      UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F=   563.    PT5/PT2= 60.1    M2=1.439    PSI=  3.64    PCI=  7.25
   2    F/A=0.0000    ETAC=  0.0    TT5F=  1042.    PT5/PT2= 51.2    M2=1.460    PSI=  5.21    PCI=  7.49
   3    F/A= .0662    ETAC= 89.7    TT5F=  3900.    PT5/PT2= 85.9    M2= .449    PSI= 19.41    PCI= 18.00
   4    F/A= .0600    ETAC= 86.4    TT5F=  3674.    PT5/PT2= 84.2    M2= .463    PSI= 18.99    PCI= 17.69
   5    F/A= .0554    ETAC= 84.6    TT5F=  3499.    PT5/PT2= 84.5    M2= .485    PSI= 18.21    PCI= 16.68
   6    F/A= .0510    ETAC= 79.9    TT5F=  3238.    PT5/PT2= 83.2    M2= .507    PSI= 17.47    PCI= 16.50
   7    F/A= .0449    ETAC= 75.4    TT5F=  2931.    PT5/PT2= 84.9    M2= .573    PSI= 15.22    PCI= 15.45
   8    F/A= .0398    ETAC= 67.6    TT5F=  2574.    PT5/PT2= 80.5    M2= .592    PSI= 14.87    PCI= 14.05
          98.HZ  A( 1)=  .008RMSPSI,  A( 4)=  .555RMSPSI,  PHASE( 1 4)=  -71.5DEG.
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12IN.CHAMB  -7IN. INLET   NO F.HOLD.   L/D=1.5       UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F= 1060.   PT5/PT2= 61.1   M2=1.439   PSI=  4.43   PCI=  4.44
  2   F/A= .0655   ETAC= 24.0   TT5F= 1771.   PT5/PT2= 83.7   M2= .619   PSI= 11.73   PCI= 11.89
  .        8.HZ  A( 4)=  .598RMSPSI,  A( 8)=  .509RMSPSI,  PHASE( 4 8)=   5.7DEG.
  3   F/A= .0618   ETAC= 23.4   TT5F= 1736.   PT5/PT2= 83.5   M2= .633   PSI= 11.43   PCI= 11.51
  4   F/A= .0546   ETAC= 25.6   TT5F= 1753.   PT5/PT2= 83.5   M2= .636   PSI= 11.37   PCI= 11.48
  5   F/A= .0486   ETAC= 28.6   TT5F= 1779.   PT5/PT2= 83.6   M2= .635   PSI= 11.40   PCI= 11.55
  6   F/A= .0485   ETAC= 28.4   TT5F= 1769.   PT5/PT2= 83.6   M2= .637   PSI= 11.38   PCI= 11.57
  7   F/A= .0444   ETAC= 31.3   TT5F= 1797.   PT5/PT2= 83.5   M2= .632   PSI= 11.49   PCI= 11.83
  8   F/A= .0400   ETAC= 32.7   TT5F= 1768.   PT5/PT2= 82.6   M2= .634   PSI= 11.45   PCI= 11.76
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12IN.CHAMB   7IN. INLET   .25Y F.H.     TTD=750R     UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  758.     PT5/PT2= 49.5     M2= .479    PSI= 13.22    PCI=  7.37
  2   F/A= .0653   ETAC= 83.0    TT5F= 3555.     PT5/PT2= 82.4     M2= .310    PSI= 20.70    PCI= 18.00
        118.HZ  A( 4)= 3.128RMSPSI,  A( 8)= 2.990RMSPSI,  PHASE( 4 8)=   11.0DEG.
        236.HZ  A( 4)=  .929RMSPSI,  A( 8)=  .532RMSPSI,  PHASE( 4 8)=   38.2DEG.
  3   F/A= .0604   ETAC= 81.6    TT5F= 3405.     PT5/PT2= 82.1     M2= .320    PSI= 20.13    PCI= 17.46
        116.HZ  A( 4)= 3.113RMSPSI,  A( 8)= 2.913RMSPSI,  PHASE( 4 8)=   11.3DEG.
        233.HZ  A( 4)=  .804RMSPSI,  A( 8)=  .444RMSPSI,  PHASE( 4 8)=   39.8DEG.
  4   F/A= .0557   ETAC= 79.7    TT5F= 3225.     PT5/PT2= 81.5     M2= .329    PSI= 19.50    PCI= 16.85
        116.HZ  A( 4)= 2.851RMSPSI,  A( 8)= 2.620RMSPSI,  PHASE( 4 8)=   11.6DEG.
        233.HZ  A( 4)=  .677RMSPSI,  A( 8)=  .374RMSPSI,  PHASE( 4 8)=   41.1DEG.
        348.HZ  A( 4)=  .432RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)=  176.3DEG.
  5   F/A= .0506   ETAC= 75.7    TT5F= 2950.     PT5/PT2= 80.2     M2= .342    PSI= 18.76    PCI= 16.00
        114.HZ  A( 4)= 3.036RMSPSI,  A( 8)= 2.712RMSPSI,  PHASE( 4 8)=   12.2DEG.
        228.HZ  A( 4)=  .846RMSPSI,  A( 8)=  .450RMSPSI,  PHASE( 4 8)=   33.3DEG.
        341.HZ  A( 4)=  .512RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)= -160.6DEG.
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12IN.CHAMB   7IN. INLET   .25Y F.H.    TTO=750R      TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  747.    PT5/PT2= 49.4    M2= .480    PSI= 13.18    PCI=  7.33
  2   F/A= .0644   ETAC= 63.6    TT5F= 2883.    PT5/PT2= 80.1    M2= .341    PSI= 18.75    PCI= 15.92
       110.HZ  A( 4)= 1.572RMSPSI,  A( 8)= 1.288RMSPSI,  PHASE( 4 8)=   11.3DEG.
  3   F/A= .0594   ETAC= 66.4    TT5F= 2886.    PT5/PT2= 80.6    M2= .346    PSI= 18.55    PCI= 15.76
       110.HZ  A( 4)=  .459RMSPSI,  A( 8)=  .404RMSPSI,  PHASE( 4 8)=   13.1DEG.
  4   F/A= .0551   ETAC= 68.3    TT5F= 2851.    PT5/PT2= 80.2    M2= .348    PSI= 18.41    PCI= 15.59
  5   F/A= .0494   ETAC= 72.7    TT5F= 2828.    PT5/PT2= 80.1    M2= .351    PSI= 18.20    PCI= 15.30
  6   F/A= .0458   ETAC= 75.2    TT5F= 2780.    PT5/PT2= 79.9    M2= .354    PSI= 18.04    PCI= 15.14
  7   F/A= .0402   ETAC= 78.6    TT5F= 2661.    PT5/PT2= 79.3    M2= .363    PSI= 17.58    PCI= 14.75
  8   F/A= .0353   ETAC= 80.4    TT5F= 2505.    PT5/PT2= 78.4    M2= .374    PSI= 17.03    PCI= 14.29
  9   F/A= .0312   ETAC= 81.7    TT5F= 2352.    PT5/PT2= 77.5    M2= .385    PSI= 16.54    PCI= 13.77
 10   F/A= .0266   ETAC= 83.0    TT5F= 2160.    PT5/PT2= 76.1    M2= .400    PSI= 15.89    PCI= 13.03
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12IN.CHAMB    7IN. INLET    .35Y F.M.     TTO=750R       TUBE INJ.
   1     F/A=0.0000    ETAC=  0.0     TT5F=  749.     PT5/PT2= 42.8    M2= .397    PSI= 15.81    PCI=  7.35
   2     F/A= .0651    ETAC= 78.0     TT5F= 3375.     PT5/PT2= 77.9    M2= .298    PSI= 21.27    PCI= 16.65
            121.HZ  A( 4)= 1.453RMSPSI,  A( 8)= 1.120RMSPSI,  PHASE( 4 8)=     12.4DEG.
   3     F/A= .0589    ETAC= 81.7     TT5F= 3361.     PT5/PT2= 78.2    M2= .302    PSI= 21.05    PCI= 16.40
   4     F/A= .0558    ETAC= 83.1     TT5F= 3323.     PT5/PT2= 78.2    M2= .306    PSI= 20.83    PCI= 16.30
   5     F/A= .0506    ETAC= 83.8     TT5F= 3178.     PT5/PT2= 77.3    M2= .310    PSI= 20.39    PCI= 16.22
   6     F/A= .0472    ETAC= 85.1     TT5F= 3089.     PT5/PT2= 77.0    M2= .314    PSI= 20.07    PCI= 15.96
   7     F/A= .0424    ETAC= 85.2     TT5F= 2906.     PT5/PT2= 75.9    M2= .324    PSI= 19.49    PCI= 15.47
   8     F/A= .0355    ETAC= 83.4     TT5F= 2569.     PT5/PT2= 73.5    M2= .339    PSI= 18.78    PCI= 14.50
   9     F/A= .0313    ETAC= 82.6     TT5F= 2366.     PT5/PT2= 72.1    M2= .349    PSI= 18.25    PCI= 13.72
  10     F/A= .0265    ETAC= 27.4     TT5F= 1199.     PT5/PT2= 54.5    M2= .391    PSI= 16.16    PCI=  9.64
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   BASELINE        TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  975.    PT5/PT2= 77.1    M2=1.430    PSI=  3.40    PCI=  7.84
  2   F/A= .0652   ETAC= 73.2    TT5F= 3352.    PT5/PT2= 93.4    M2= .322    PSI= 17.58    PCI= 17.11
        99.HZ  A( 4)=  .826RMSPSI,  A( 8)=  .680RMSPSI,  PHASE( 4 8)=  11.6DEG.
       106.HZ  A( 4)=  .727RMSPSI,  A( 8)=  .621RMSPSI,  PHASE( 4 8)=   7.6DEG.
  3   F/A= .0613   ETAC= 75.9    TT5F= 3374.    PT5/PT2= 93.5    M2= .323    PSI= 17.56    PCI= 17.10
       101.HZ  A( 4)=  .734RMSPSI,  A( 8)=  .604RMSPSI,  PHASE( 4 8)=   9.2DEG.
       111.HZ  A( 4)=  .593RMSPSI,  A( 8)=  .492RMSPSI,  PHASE( 4 8)=  10.5DEG.
  4   F/A= .0548   ETAC= 76.5    TT5F= 3248.    PT5/PT2= 93.4    M2= .333    PSI= 17.01    PCI= 16.55
       110.HZ  A( 4)=  .518RMSPSI,  A( 8)=  .435RMSPSI,  PHASE( 4 8)=   6.1DEG.
  5   F/A= .0507   ETAC= 76.4    TT5F= 3134.    PT5/PT2= 93.3    M2= .341    PSI= 16.55    PCI= 16.17
  6   F/A= .0470   ETAC= 76.1    TT5F= 3014.    PT5/PT2= 93.2    M2= .351    PSI= 16.16    PCI= 15.84
  7   F/A= .0401   ETAC= 76.4    TT5F= 2791.    PT5/PT2= 93.2    M2= .371    PSI= 15.25    PCI= 15.10
  8   F/A= .0361   ETAC= 76.4    TT5F= 2644.    PT5/PT2= 93.0    M2= .385    PSI= 14.69    PCI= 14.61
  9   F/A= .0308   ETAC= 73.7    TT5F= 2386.    PT5/PT2= 92.7    M2= .412    PSI= 13.67    PCI= 13.70
 10   F/A= .0259   ETAC= 72.4    TT5F= 2171.    PT5/PT2= 93.0    M2= .443    PSI= 12.78    PCI= 13.11
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   TTO=750R      UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0     TT5F=  764.     PT5/PT2= 79.4    M2=1.432    PSI=  2.93    PCI=  7.03
  2    F/A= .0497    ETAC= 83.5     TT5F= 3146.     PT5/PT2= 93.8    M2= .291    PSI= 16.76    PCI= 16.21
         90.HZ  A( 4)=  .670RMSPSI,  A( 8)=  .706RMSPSI,  PHASE( 4 8)=  15.50EG.
         73.HZ  A( 4)=  .188RMSPSI,  A( 8)=  .146RMSPSI,  PHASE( 4 8)=  14.60EG.
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```
12IN.CHAMB   8IN. INLET    NO F.HOLD.    TTO=750R     TUBE INJ.
  1     F/A= .0402    ETAC= 67.7      TT5F= 2400.     PT5/PT2= 92.9     M2= .342     PSI= 14.25    PCI= 13.86
            96.HZ   A( 4)=  .535RMSPSI,   A( 8)=  .485RMSPSI,  PHASE( 4 8)=      9.7DEG.
           104.HZ   A( 4)=  .681RMSPSI,   A( 8)=  .658RMSPSI,  PHASE( 4 8)=      8.8DEG.
  2     F/A= .0361    ETAC= 69.3      TT5F= 2295.     PT5/PT2= 92.8     M2= .352     PSI= 13.83    PCI= 13.46
           100.HZ   A( 4)=  .515RMSPSI,   A( 8)=  .487RMSPSI,  PHASE( 4 8)=     10.2DEG.
           106.HZ   A( 4)=  .350RMSPSI,   A( 8)=  .327RMSPSI,  PHASE( 4 8)=      9.5DEG.
  3     F/A= .0307    ETAC= 68.1      TT5F= 2066.     PT5/PT2= 92.7     M2= .377     PSI= 12.88    PCI= 12.64
  4     F/A= .0261    ETAC= 65.8      TT5F= 1851.     PT5/PT2= 92.6     M2= .405     PSI= 11.92    PCI= 11.85
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   TT0=1250R   UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F= 1244.   PT5/PT2= 76.8   M2=1.452   PSI=  3.79   PCI=  9.10
  2   F/A= .0649   ETAC= 92.6   TT5F= 4074.   PT5/PT2= 95.4   M2= .330   PSI= 19.40   PCI= 19.35
  3   F/A= .0614   ETAC= 92.6   TT5F= 4013.   PT5/PT2= 93.7   M2= .329   PSI= 19.53   PCI= 19.16
        90.HZ  A( 4)=  .603RMSPSI,  A( 8)=  .413RMSPSI,  PHASE( 4 8)=   5.0DEG.
       173.HZ  A( 4)=  .821RMSPSI,  A( 8)=  .808RMSPSI,  PHASE( 4 8)=   9.0DEG.
  4   F/A= .0552   ETAC= 93.0   TT5F= 3876.   PT5/PT2= 93.6   M2= .339   PSI= 18.91   PCI= 18.55
       181.HZ  A( 4)=  .428RMSPSI,  A( 8)=  .539RMSPSI,  PHASE( 4 8)=  26.1DEG.
  5   F/A= .0503   ETAC= 93.2   TT5F= 3735.   PT5/PT2= 94.3   M2= .354   PSI= 18.14   PCI= 17.99
  6   F/A= .0457   ETAC= 93.6   TT5F= 3582.   PT5/PT2= 94.7   M2= .367   PSI= 17.41   PCI= 17.38
  7   F/A= .0413   ETAC= 91.6   TT5F= 3363.   PT5/PT2= 95.6   M2= .389   PSI= 16.41   PCI= 16.73
  8   F/A= .0366   ETAC= 89.9   TT5F= 3131.   PT5/PT2= 96.1   M2= .412   PSI= 15.39   PCI= 15.94
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   LOW FLOW     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F= 1002.    PT5/PT2= 76.4     M2=1.482     PSI=  1.96    PCI=  4.84
   2    F/A= .0637    ETAC= 78.5    TT5F= 3485.    PT5/PT2= 93.9     M2= .316     PSI= 10.94    PCI= 10.74
          75.HZ  A( 4)= 1.040RMSPSI,  A( 8)=  .784RMSPSI,  PHASE( 4 8)=    7.2DEG.
         135.HZ  A( 4)=  .228RMSPSI,  A( 8)=  .216RMSPSI,  PHASE( 4 8)=    8.9DEG.
         150.HZ  A( 4)=  .191RMSPSI,  A( 8)=  .240RMSPSI,  PHASE( 4 8)=    -.9DEG.
   3    F/A= .0582    ETAC= 84.0    TT5F= 3542.    PT5/PT2= 92.9     M2= .310     PSI= 11.14    PCI= 10.82
   4    F/A= .0541    ETAC= 81.2    TT5F= 3355.    PT5/PT2= 92.6     M2= .322     PSI= 10.73    PCI= 10.44
   5    F/A= .0488    ETAC= 74.9    TT5F= 3031.    PT5/PT2= 93.1     M2= .347     PSI=  9.93    PCI=  9.73
   6    F/A= .0462    ETAC= 70.0    TT5F= 2825.    PT5/PT2= 93.6     M2= .367     PSI=  9.43    PCI=  9.32
   7    F/A= .0404    ETAC= 57.9    TT5F= 2361.    PT5/PT2= 95.1     M2= .421     PSI=  8.12    PCI=  8.28
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   LOW FLOW     TUBE INJ.
  1    F/A= .0498    ETAC= 70.8    TT5F= 2945.    PT5/PT2= 93.8    M2= .357    PSI=  9.67    PCI=  9.44
           90.HZ  A( 4)=  .251RMSPSI,  A( 8)=  .191RMSPSI,  PHASE( 4 8)=    6.1DEG.
          101.HZ  A( 4)=  .253RMSPSI,  A( 8)=  .207RMSPSI,  PHASE( 4 8)=    8.1DEG.
  2    F/A= .0453    ETAC= 71.7    TT5F= 2839.    PT5/PT2= 93.8    M2= .367    PSI=  9.40    PCI=  9.21
  3    F/A= .0412    ETAC= 73.0    TT5F= 2741.    PT5/PT2= 94.2    M2= .379    PSI=  9.08    PCI=  8.93
  4    F/A= .0363    ETAC= 73.8    TT5F= 2590.    PT5/PT2= 94.1    M2= .394    PSI=  8.74    PCI=  8.64
  5    F/A= .0312    ETAC= 75.1    TT5F= 2420.    PT5/PT2= 93.8    M2= .412    PSI=  8.34    PCI=  8.32
  6    F/A= .0262    ETAC= 74.6    TT5F= 2213.    PT5/PT2= 93.7    M2= .439    PSI=  7.81    PCI=  7.87
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12IN.CHAMB   8IN. INLET    NO F.HOLD.    40% NOZ.      UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  995.   PT5/PT2= 96.6   M2= .635   PSI=  6.96   PCI=  8.51
  2   F/A= .0546   ETAC= 89.8   TT5F= 3639.   PT5/PT2= 94.7   M2= .246   PSI= 18.53   PCI= 18.12
         114.HZ  A( 4)= 1.191RMSPSI,  A( 8)= 1.382RMSPSI,  PHASE( 4 8)=  21.2DEG.
  3   F/A= .0497   ETAC= 89.4   TT5F= 3470.   PT5/PT2= 95.3   M2= .257   PSI= 17.79   PCI= 17.46
         111.HZ  A( 4)= 1.097RMSPSI,  A( 8)= 1.190RMSPSI,  PHASE( 4 8)=  20.4DEG.
  4   F/A= .0466   ETAC= 87.7   TT5F= 3307.   PT5/PT2= 95.6   M2= .266   PSI= 17.18   PCI= 17.00
         109.HZ  A( 4)=  .939RMSPSI,  A( 8)= 1.011RMSPSI,  PHASE( 4 8)=  20.6DEG.
  5   F/A= .0430   ETAC= 87.5   TT5F= 3167.   PT5/PT2= 95.4   M2= .272   PSI= 16.66   PCI= 16.50
          76.HZ  A( 4)=  .282RMSPSI,  A( 8)=  .220RMSPSI,  PHASE( 4 8)=   9.6DEG.
  6   F/A= .0367   ETAC= 47.4   TT5F= 2023.   PT5/PT2= 94.7   M2= .353   PSI= 12.75   PCI= 12.93
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12IN.CHAMB   8IN. INLET   NO F.MOLD.   40% NOZ.      TUBE INJ.
   1   F/A=0.0000   ETAC= 0.0    TT5F=  959.   PT5/PT2= 93.9   M2= .625   PSI=  7.10   PCI=  8.44
          109.HZ  A( 4)=  .072RMSPSI,  A( 8)=  .203RMSPSI,  PHASE( 4 8)=  124.6DEG.
   2   F/A= .0650   ETAC= 75.9   TT5F= 3442.   PT5/PT2= 95.5   M2= .255   PSI= 18.03   PCI= 17.69
          106.HZ  A( 4)= 1.054RMSPSI,  A( 8)= 1.026RMSPSI,  PHASE( 4 8)=   12.0DEG.
   3   F/A= .0608   ETAC= 76.8   TT5F= 3393.   PT5/PT2= 95.5   M2= .258   PSI= 17.77   PCI= 17.46
          105.HZ  A( 4)=  .951RMSPSI,  A( 8)=  .905RMSPSI,  PHASE( 4 8)=   13.6DEG.
   4   F/A= .0569   ETAC= 76.2   TT5F= 3291.   PT5/PT2= 95.2   M2= .262   PSI= 17.40   PCI= 17.09
          110.HZ  A( 4)= 1.068RMSPSI,  A( 8)= 1.093RMSPSI,  PHASE( 4 8)=   15.0DEG.
   5   F/A= .0517   ETAC= 75.9   TT5F= 3150.   PT5/PT2= 95.0   M2= .270   PSI= 16.89   PCI= 16.59
          111.HZ  A( 4)=  .359RMSPSI,  A( 8)=  .376RMSPSI,  PHASE( 4 8)=   16.4DEG.
   6   F/A= .0448   ETAC= 75.3   TT5F= 2922.   PT5/PT2= 94.8   M2= .283   PSI= 16.10   PCI= 15.85
          108.HZ  A( 4)=  .291RMSPSI,  A( 8)=  .307RMSPSI,  PHASE( 4 8)=   15.1DEG.
          113.HZ  A( 4)=  .359RMSPSI,  A( 8)=  .396RMSPSI,  PHASE( 4 8)=   14.2DEG.
   7   F/A= .0411   ETAC= 75.9   TT5F= 2807.   PT5/PT2= 94.8   M2= .290   PSI= 15.64   PCI= 15.40
          108.HZ  A( 4)=  .279RMSPSI,  A( 8)=  .296RMSPSI,  PHASE( 4 8)=   15.8DEG.
          113.HZ  A( 4)=  .219RMSPSI,  A( 8)=  .225RMSPSI,  PHASE( 4 8)=   18.8DEG.
   8   F/A= .0355   ETAC= 75.0   TT5F= 2591.   PT5/PT2= 94.5   M2= .306   PSI= 14.86   PCI= 14.67
          110.HZ  A( 4)=  .108RMSPSI,  A( 8)=  .108RMSPSI,  PHASE( 4 8)=   15.2DEG.
          343.HZ  A( 4)=  .074RMSPSI,  A( 8)=  .099RMSPSI,  PHASE( 4 8)= -145.60DEG.
          349.HZ  A( 4)=  .137RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)= -152.30DEG.
   9   F/A= .0308   ETAC= 74.1   TT5F= 2386.   PT5/PT2= 94.6   M2= .322   PSI= 14.11   PCI= 14.00
  10   F/A= .0257   ETAC= 74.0   TT5F= 2179.   PT5/PT2= 94.5   M2= .342   PSI= 13.29   PCI= 13.29
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   L/D=1.5      UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F= 1003.    PT5/PT2= 79.2    M2=1.407    PSI=  3.49    PCI=  4.61
  2   F/A=0.0000   ETAC=  0.0    TT5F= 1008.    PT5/PT2= 79.4    M2=1.410    PSI=  3.47    PCI=  4.60
  3   F/A= .0595   ETAC= 63.4    TT5F= 2951.    PT5/PT2= 90.7    M2= .340    PSI= 16.75    PCI= 16.42
        174.HZ  A( 4)= 1.834RMSPSI,  A( 8)= 1.664RMSPSI,  PHASE( 4 8)=   17.7DEG.
  4   F/A= .0539   ETAC= 68.4    TT5F= 2988.    PT5/PT2= 91.6    M2= .342    PSI= 16.54    PCI= 16.17
        176.HZ  A( 4)= 1.896RMSPSI,  A( 8)= 1.741RMSPSI,  PHASE( 4 8)=   20.3DEG.
  5   F/A= .0508   ETAC= 63.4    TT5F= 2771.    PT5/PT2= 91.4    M2= .359    PSI= 15.70    PCI= 15.65
        179.HZ  A( 4)=  .969RMSPSI,  A( 8)=  .872RMSPSI,  PHASE( 4 8)=   22.4DEG.
  6   F/A= .0458   ETAC= 55.6    TT5F= 2442.    PT5/PT2= 91.4    M2= .391    PSI= 14.43    PCI= 14.54
        183.HZ  A( 4)=  .347RMSPSI,  A( 8)=  .291RMSPSI,  PHASE( 4 8)=   30.4DEG.
  7   F/A= .0410   ETAC= 43.7    TT5F= 2047.    PT5/PT2= 90.5    M2= .437    PSI= 12.88    PCI= 13.21
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12IN.CHAMB   8IN. INLET   NO F.HOLD.   L/D=1.5      TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  981.    PT5/PT2= 77.8    M2=1.418    PSI=  3.46    PCI=  4.57
  2   F/A= .0529   ETAC= 54.3    TT5F= 2556.    PT5/PT2= 91.7    M2= .378    PSI= 14.87    PCI= 14.79
        161.HZ  A( 4)= 1.328RMSPSI,  A( 8)=  .986RMSPSI,  PHASE( 4 8)=   20.5DEG.
  3   F/A= .0490   ETAC= 54.9    TT5F= 2493.    PT5/PT2= 91.6    M2= .385    PSI= 14.63    PCI= 14.56
        165.HZ  A( 4)= 1.444RMSPSI,  A( 8)= 1.105RMSPSI,  PHASE( 4 8)=   18.7DEG.
  4   F/A= .0450   ETAC= 57.4    TT5F= 2467.    PT5/PT2= 91.8    M2= .390    PSI= 14.42    PCI= 14.37
        173.HZ  A( 4)= 1.435RMSPSI,  A( 8)= 1.122RMSPSI,  PHASE( 4 8)=   20.6DEG.
        178.HZ  A( 4)= 1.216RMSPSI,  A( 8)=  .986RMSPSI,  PHASE( 4 8)=   19.5DEG.
  5   F/A= .0415   ETAC= 58.5    TT5F= 2408.    PT5/PT2= 91.9    M2= .399    PSI= 14.14    PCI= 14.16
        183.HZ  A( 4)= 1.849RMSPSI,  A( 8)= 1.487RMSPSI,  PHASE( 4 8)=   20.9DEG.
  6   F/A= .0359   ETAC= 61.7    TT5F= 2322.    PT5/PT2= 91.9    M2= .411    PSI= 13.69    PCI= 13.78
        189.HZ  A( 4)= 1.378RMSPSI,  A( 8)= 1.139RMSPSI,  PHASE( 4 8)=   21.6DEG.
  7   F/A= .0310   ETAC= 63.4    TT5F= 2197.    PT5/PT2= 91.5    M2= .427    PSI= 13.19    PCI= 13.40
        199.HZ  A( 4)=  .435RMSPSI,  A( 8)=  .351RMSPSI,  PHASE( 4 8)=   23.2DEG.
        194.HZ  A( 4)=  .338RMSPSI,  A( 8)=  .279RMSPSI,  PHASE( 4 8)=   24.6DEG.
  8   F/A= .0268   ETAC= 64.1    TT5F= 2069.    PT5/PT2= 91.6    M2= .448    PSI= 12.52    PCI= 12.77
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12IN.CHAMB  8IN. INLET   .25Y F.M.     BASELINE     UNIF.INJ.
   1   F/A=0.0000   ETAC=  0.0    TT5F=  990.    PT5/PT2= 71.4   M2= .561   PSI=  9.87   PCI=  8.45
   2   F/A= .0657   ETAC= 92.9    TT5F= 4000.    PT5/PT2= 89.8   M2= .275   PSI= 20.64   PCI= 18.93
   3   F/A= .0610   ETAC= 93.1    TT5F= 3909.    PT5/PT2= 89.3   M2= .280   PSI= 20.37   PCI= 18.56
   4   F/A= .0558   ETAC= 93.2    TT5F= 3770.    PT5/PT2= 89.2   M2= .287   PSI= 19.81   PCI= 18.09
   5   F/A= .0495   ETAC= 92.6    TT5F= 3544.    PT5/PT2= 88.4   M2= .297   PSI= 19.08   PCI= 17.43
   6   F/A= .0453   ETAC= 86.7    TT5F= 3233.    PT5/PT2= 87.8   M2= .314   PSI= 18.09   PCI= 16.60
   7   F/A= .0395   ETAC=  1.4    TT5F= 1033.    PT5/PT2= 71.3   M2= .537   PSI= 10.37   PCI=  8.93
       136.HZ  A( 4)= 1.557RMSPSI,  A( 8)= 1.262RMSPSI,  PHASE( 4 8)=   13.0DEG.
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12IN.CHAMB   8IN. INLET   .25Y F.H.   TTO=750R   UNIF.INJ.
 1  F/A=0.0000  ETAC=  0.0   TT5F=  751.   PT5/PT2= 71.3   M2= .550   PSI=  8.75   PCI= [illegible]7.35
 2  F/A= .0657  ETAC= 84.4   TT5F= 3609.   PT5/PT2= 89.9   M2= .251   PSI= 19.46   PCI= 17.59
       126.HZ  A( 4)= 4.084RMSPSI,  A( 8)= 3.807RMSPSI,  PHASE( 4 8)=  360.00DEG.
       253.HZ  A( 4)= 1.139RMSPSI,  A( 8)=  .723RMSPSI,  PHASE( 4 8)=    6.70DEG.
       378.HZ  A( 4)= 1.278RMSPSI,  A( 8)=  .472RMSPSI,  PHASE( 4 8)=  167.90DEG.
 3  F/A= .0619  ETAC= 82.2   TT5F= 3458.   PT5/PT2= 89.5   M2= .259   PSI= 18.95   PCI= 17.[illegible]
       125.HZ  A( 4)= 3.745RMSPSI,  A( 8)= 3.498RMSPSI,  PHASE( 4 8)=    1.20DEG.
       249.HZ  A( 4)= 1.117RMSPSI,  A( 8)=  .754RMSPSI,  PHASE( 4 8)=   11.00DEG.
       374.HZ  A( 4)= 1.301RMSPSI,  A( 8)=  .515RMSPSI,  PHASE( 4 8)=  170.80DEG.
 4  F/A= .0563  ETAC= 79.6   TT5F= 3235.   PT5/PT2= 89.1   M2= .269   PSI= 18.17   PCI= 16.38
       121.HZ  A( 4)= 3.452RMSPSI,  A( 8)= 3.236RMSPSI,  PHASE( 4 8)=    4.00DEG.
       241.HZ  A( 4)= 1.073RMSPSI,  A( 8)=  .758RMSPSI,  PHASE( 4 8)=   20.10DEG.
       363.HZ  A( 4)= 1.274RMSPSI,  A( 8)=  .475RMSPSI,  PHASE( 4 8)=  178.90DEG.
       483.HZ  A( 4)=  .613RMSPSI,  A( 8)=  .439RMSPSI,  PHASE( 4 8)=  177.30DEG.
 5  F/A= .0518  ETAC= 74.7   TT5F= 2956.   PT5/PT2= 88.2   M2= .282   PSI= 17.32   PCI= 15.59
       114.HZ  A( 4)= 3.313RMSPSI,  A( 8)= 3.067RMSPSI,  PHASE( 4 8)=    9.60DEG.
       226.HZ  A( 4)=  .922RMSPSI,  A( 8)=  .544RMSPSI,  PHASE( 4 8)=   28.10DEG.
       340.HZ  A( 4)=  .772RMSPSI,  A( 8)=  .233RMSPSI,  PHASE( 4 8)= -162.20DEG.
       454.HZ  A( 4)=  .410RMSPSI,  A( 8)=  .225RMSPSI,  PHASE( 4 8)= -171.90DEG.
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12IN.CHAMB[illegible] 8IN. INLET   .25Y F.H.    TT0=750R    TUBE INJ.
  1   F/A=0.0000  ETAC=  0.0   TT5F=  771.   PT5/PT2= 72.5   M2= .554   PSI=  8.66   PCI= [illegible]7.37
  2   F/A= .0666  ETAC= 65.6   TT5F= 2979.   PT5/PT2= 87.7   M2= .273   PSI= 17.96   PCI= 16.13
      108.HZ  A( 4)= 2.543RMSPSI,  A( 8)= 2.219RMSPSI,  PHASE( 4 8)=   13.30DEG.
      214.HZ  A( 4)=  .751RMSPSI,  A( 8)=  .299RMSPSI,  PHASE( 4 8)=   40.00DEG.
      321.HZ  A( 4)=  .470RMSPSI,  A( 8)=  .194RMSPSI,  PHASE( 4 8)= -171.30DEG.
      428.HZ  A( 4)=  .370RMSPSI,  A( 8)=  .259RMSPSI,  PHASE( 4 8)= -173.60DEG.
  3   F/A= .0609  ETAC= 67.1   TT5F= 2936.   PT5/PT2= 87.6   M2= .277   PSI= 17.64   PCI= 15.90
      106.HZ  A( 4)= 2.420RMSPSI,  A( 8)= 2.096RMSPSI,  PHASE( 4 8)=   13.40DEG.
      211.HZ  A( 4)=  .552RMSPSI,  A( 8)=  .228RMSPSI,  PHASE( 4 8)=   41.90DEG.
  4   F/A= .0555  ETAC= 68.4   TT5F= 2862.   PT5/PT2= 87.3   M2= .282   PSI= 17.36   PCI= 15.59
      104.HZ  A( 4)= 2.789RMSPSI,  A( 8)= 2.358RMSPSI,  PHASE( 4 8)=   14.10DEG.
      209.HZ  A( 4)=  .718RMSPSI,  A( 8)=  .304RMSPSI,  PHASE( 4 8)=   47.40DEG.
  5   F/A= .0499  ETAC= 67.7   TT5F= 2697.   PT5/PT2= 86.6   M2= .291   PSI= 16.80   PCI= 15.03
      104.HZ  A( 4)= 2.435RMSPSI,  A( 8)= 2.034RMSPSI,  PHASE( 4 8)=   14.70DEG.
      206.HZ  A( 4)=  .589RMSPSI,  A( 8)=  .250RMSPSI,  PHASE( 4 8)=   50.40DEG.
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12IN.CHAMB   8IN. INLET   .25Y F.H.   LOW FLOW   UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F= 1019.   PT5/PT2= 71.3   M2= .528   PSI=  6.32   PCI= 5.30
  2   F/A= .0640   ETAC= 86.8   TT5F= 3751.   PT5/PT2= 88.7   M2= .282   PSI= 12.20   PCI= 11.19
        145.HZ   A( 4)= 1.176RMSPSI,   A( 8)=  .996RMSPSI,   PHASE( 4 8)=  11.8DEG.
  3   F/A= .0593   ETAC= 87.2   TT5F= 3668.   PT5/PT2= 88.4   M2= .286   PSI= 11.97   PCI= 10.9[illegible]
        144.HZ   A( 4)= 1.119RMSPSI,   A( 8)=  .937RMSPSI,   PHASE( 4 8)=  12.4DEG.
  4   F/A= .0544   ETAC= 86.9   TT5F= 3530.   PT5/PT2= 88.0   M2= .294   PSI= 11.67   PCI= 10.7[illegible]
        141.HZ   A( 4)= 1.079RMSPSI,   A( 8)=  .883RMSPSI,   PHASE( 4 8)=  13.0DEG.
  5   F/A= .0508   ETAC= 86.7   TT5F= 3411.   PT5/PT2= 87.8   M2= .300   PSI= 11.36   PCI= 10.41
        138.HZ   A( 4)= 1.057RMSPSI,   A( 8)=  .840RMSPSI,   PHASE( 4 8)=  14.0DEG.
  6   F/A= .0465   ETAC= 85.4   TT5F= 3232.   PT5/PT2= 87.1   M2= .309   PSI= 11.05   PCI= 10.11
        130.HZ   A( 4)=  .872RMSPSI,   A( 8)=  .653RMSPSI,   PHASE( 4 8)=  13.7DEG.
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12IN.CHAMB[illegible].8IN. INLET  .25Y F.H.   40Z NOZ.    UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  951.    PT5/PT2= 81.9    M2= .511    PSI=  8.80   PCI=  8.50
  2   F/A= .0651   ETAC= 90.0    TT5F= 3896.    PT5/PT2= 91.9    M2= .226    PSI= 20.41   PCI= 18.9[illegible]
       134.HZ  A( 4)= 2.913RMSPSI,  A( 8)= 2.805RMSPSI,  PHASE( 4 8)=    6.3DEG.
       268.HZ  A( 4)=  .635RMSPSI,  A( 8)=  .584RMSPSI,  PHASE( 4 8)=   20.6DEG.
       401.HZ  A( 4)=  .556RMSPSI,  A( 8)=  .336RMSPSI,  PHASE( 4 8)=  145.5DEG.
  3   F/A= .0602   ETAC= 89.9    TT5F= 3793.    PT5/PT2= 92.0    M2= .231    PSI= 19.92   PCI= 18.6[illegible]
       133.HZ  A( 4)= 2.759RMSPSI,  A( 8)= 2.651RMSPSI,  PHASE( 4 8)=    7.3DEG.
       265.HZ  A( 4)=  .613RMSPSI,  A( 8)=  .564RMSPSI,  PHASE( 4 8)=   26.6DEG.
       398.HZ  A( 4)=  .623RMSPSI,  A( 8)=  .399RMSPSI,  PHASE( 4 8)=  155.7DEG.
  4   F/A= .0555   ETAC= 90.0    TT5F= 3670.    PT5/PT2= 92.2    M2= .238    PSI= 19.35   PCI= 18.16
       131.HZ  A( 4)= 2.358RMSPSI,  A( 8)= 2.250RMSPSI,  PHASE( 4 8)=    9.0DEG.
       261.HZ  A( 4)=  .590RMSPSI,  A( 8)=  .504RMSPSI,  PHASE( 4 8)=   37.5DEG.
       393.HZ  A( 4)=  .599RMSPSI,  A( 8)=  .370RMSPSI,  PHASE( 4 8)=  159.6DEG.
  5   F/A= .0501   ETAC= 88.3    TT5F= 3448.    PT5/PT2= 92.0    M2= .247    PSI= 18.57   PCI= 17.50
       128.HZ  A( 4)= 2.235RMSPSI,  A( 8)= 2.142RMSPSI,  PHASE( 4 8)=   10.6DEG.
       255.HZ  A( 4)=  .522RMSPSI,  A( 8)=  .399RMSPSI,  PHASE( 4 8)=   54.9DEG.
       383.HZ  A( 4)=  .530RMSPSI,  A( 8)=  .328RMSPSI,  PHASE( 4 8)=  167.0DEG.
  6   F/A= .0462   ETAC= 86.7    TT5F= 3267.    PT5/PT2= 91.6    M2= .256    PSI= 17.92   PCI= 16.95
       124.HZ  A( 4)= 2.065RMSPSI,  A( 8)= 1.942RMSPSI,  PHASE( 4 8)=   11.9DEG.
       248.HZ  A( 4)=  .475RMSPSI,  A( 8)=  .307RMSPSI,  PHASE( 4 8)=   61.1DEG.
       370.HZ  A( 4)=  .418RMSPSI,  A( 8)=  .225RMSPSI,  PHASE( 4 8)=  165.10EG.
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12IN.CHAMB   8IN. INLET   .25Y F.H.    L/D=1.5        UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0    TT5F=  950.    PT5/PT2= 69.1    M2= .551    PSI= 10.14   PCI=  8.18
  2   F/A= .0653   ETAC= 73.5    TT5F= 3366.    PT5/PT2= 85.5    M2= .292    PSI= 19.51   PCI= 17.22
         198.HZ   A( 4)= 2.959RMSPSI,   A( 8)= 2.635RMSPSI,   PHASE( 4 8)=   12.7DEG.
  3   F/A= .0611   ETAC= 70.6    TT5F= 3202.    PT5/PT2= 85.1    M2= .300    PSI= 18.93   PCI= 16.75
         198.HZ   A( 4)= 3.560RMSPSI,   A( 8)= 3.051RMSPSI,   PHASE( 4 8)=   14.8DEG.
         396.HZ   A( 4)=  .983RMSPSI,   A( 8)=  .505RMSPSI,   PHASE( 4 8)=   24.8DEG.
  4   F/A= .0556   ETAC= 66.9    TT5F= 2981.    PT5/PT2= 84.8    M2= .313    PSI= 18.11   PCI= 16.08
         195.HZ   A( 4)= 3.252RMSPSI,   A( 8)= 2.759RMSPSI,   PHASE( 4 8)=   14.8DEG.
         390.HZ   A( 4)=  .874RMSPSI,   A( 8)=  .465RMSPSI,   PHASE( 4 8)=   23.0DEG.
  5   F/A= .0509   ETAC= 63.9    TT5F= 2785.    PT5/PT2= 84.4    M2= .326    PSI= 17.38   PCI= 15.48
         190.HZ   A( 4)= 2.805RMSPSI,   A( 8)= 2.327RMSPSI,   PHASE( 4 8)=   15.5DEG.
  6   F/A= .0450   ETAC= 86.5    TT5F= 3217.    PT5/PT2= 86.8    M2= .311    PSI= 18.25   PCI= 16.79
         196.HZ   A( 4)=  .302RMSPSI,   A( 8)=  .291RMSPSI,   PHASE( 4 8)=   22.2DEG.
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12IN.CHAMB. 8IN. INLET    .25 F.H.    L/D=1.5     TUBE INJ.
 1   F/A= .0636   ETAC= 51.2    TT5F= 2626.    PT5/PT2= 84.2    M2= .333    PSI= 17.10    PCI= 15.49
     174.HZ   A( 4)=  .791RMSPSI,   A( 8)=  .604RMSPSI,   PHASE( 4 8)=   15.4DEG.
     180.HZ   A( 4)=  .549RMSPSI,   A( 8)=  .399RMSPSI,   PHASE( 4 8)=   15.0DEG.
 2   F/A= .0592   ETAC= 54.3    TT5F= 2666.    PT5/PT2= 84.5    M2= .333    PSI= 17.07    PCI= 15.40
     171.HZ   A( 4)=  .983RMSPSI,   A( 8)=  .743RMSPSI,   PHASE( 4 8)=   15.9DEG.
     176.HZ   A( 4)=  .829RMSPSI,   A( 8)=  .606RMSPSI,   PHASE( 4 8)=   16.1DEG.
 3   F/A= .0543   ETAC= 57.5    TT5F= 2680.    PT5/PT2= 84.5    M2= .334    PSI= 16.99    PCI= 15.31
     178.HZ   A( 4)=  .390RMSPSI,   A( 8)=  .305RMSPSI,   PHASE( 4 8)=   17.9DEG.
     185.HZ   A( 4)=  .378RMSPSI,   A( 8)=  .293RMSPSI,   PHASE( 4 8)=   18.2DEG.
     191.HZ   A( 4)=  .353RMSPSI,   A( 8)=  .287RMSPSI,   PHASE( 4 8)=   15.8DEG.
 4   F/A= .0499   ETAC= 59.6    TT5F= 2648.    PT5/PT2= 84.4    M2= .338    PSI= 16.83    PCI= 15.15
     180.HZ   A( 4)=  .498RMSPSI,   A( 8)=  .368RMSPSI,   PHASE( 4 8)=   13.0DEG.
 5   F/A= .0458   ETAC= 61.7    TT5F= 2602.    PT5/PT2= 84.3    M2= .342    PSI= 16.55    PCI= 14.90
     181.HZ   A( 4)=  .361RMSPSI,   A( 8)=  .288RMSPSI,   PHASE( 4 8)=   13.0DEG.
 6   F/A= .0411   ETAC= 65.6    TT5F= 2572.    PT5/PT2= 84.3    M2= .347    PSI= 16.36    PCI= 14.65
 7   F/A= .0363   ETAC= 68.6    TT5F= 2488.    PT5/PT2= 84.2    M2= .356    PSI= 15.87    PCI= 14.14
 8   F/A= .0317   ETAC= 70.3    TT5F= 2357.    PT5/PT2= 83.7    M2= .367    PSI= 15.41    PCI= 13.65
 9   F/A= .0249   ETAC= 72.1    TT5F= 2126.    PT5/PT2= 83.2    M2= .391    PSI= 14.43    PCI= 12.85
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12IN.CHAMB. 8IN. INLET   .35Y F.H.   TT0=750R    UNIF.INJ.
 1  F/A=0.0000  ETAC=  0.0   TT5F= 732.   PT5/PT2= 55.6   M2= .399   PSI= 12.15   PCI=  7.50
 2  F/A= .0648  ETAC= 92.2   TT5F= 3851.  PT5/PT2= 86.4   M2= .230   PSI= 21.50   PCI= 18.70
 3  F/A= .0607  ETAC= 92.6   TT5F= 3765.  PT5/PT2= 86.1   M2= .233   PSI= 21.19   PCI= 18.42
 4  F/A= .0545  ETAC= 92.7   TT5F= 3582.  PT5/PT2= 85.7   M2= .241   PSI= 20.50   PCI= 17.75
 5  F/A= .0504  ETAC= 89.2   TT5F= 3336.  PT5/PT2= 84.7   M2= .250   PSI= 19.78   PCI= 17.[illegible]
      131.HZ  A( 4)=  .972RMSPSI,  A( 8)=  .937RMSPSI,  PHASE( 4 8)=   10.8DEG.
 6  F/A= .0439  ETAC=  9.2   TT5F= 993.   PT5/PT2= 60.4   M2= .368   PSI= 13.36   PCI= 9.[illegible]
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d. All Combustion Instabilities for Selected Test of an Eight Inch Diameter Combustion Chamber

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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   BASELINE    UNIF.INJ.
    1    F/A=0.0000    ETAC= 0.0     TT5F= 1033.    PT5/PT2= 47.2    M2= .741    PSI= 19.67    PCI= 10.11
      AT 1  RMS12=  .049,  RMS23=  .064,  RMS34=  .034          AT 4  RMS12=  .082,  RMS23=  .177,  RMS34=  .114
    2    F/A= .0651    ETAC= 59.6    TT5F= 2922.    PT5/PT2= 77.4    M2= .590    PSI= 25.09    PCI= 23.34
      AT 1  RMS12=  .177,  RMS23=  .222,  RMS34=  .061          AT 4  RMS12=  .226,  RMS23=  .375,  RMS34=  .081
             225.HZ  A( 4)=  .085RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=  127.0DEG.
             575.HZ  A( 4)=  .114RMSPSI,  A( 8)=  .235RMSPSI,  PHASE( 4 8)=  -58.0DEG.
    3    F/A= .0581    ETAC= 47.2    TT5F= 2446.    PT5/PT2= 74.1    M2= .655    PSI= 22.46    PCI= 20.17
      AT 1  RMS12=  .164,  RMS23=  .160,  RMS34=  .065          AT 4  RMS12=  .211,  RMS23=  .323,  RMS34=  .089
             250.HZ  A( 4)=  .050RMSPSI,  A( 8)=  .081RMSPSI,  PHASE( 4 8)=  154.7DEG.
             575.HZ  A( 4)=  .070RMSPSI,  A( 8)=  .210RMSPSI,  PHASE( 4 8)=  -17.8DEG.
    4    F/A= .0546    ETAC= 43.5    TT5F= 2284.    PT5/PT2= 72.6    M2= .679    PSI= 21.66    PCI= 19.13
      AT 1  RMS12=  .093,  RMS23=  .133,  RMS34=  .064          AT 4  RMS12=  .175,  RMS23=  .341,  RMS34=  .087
             575.HZ  A( 4)=  .070RMSPSI,  A( 8)=  .235RMSPSI,  PHASE( 4 8)=    -.1DEG.
    5    F/A= .0510    ETAC= 80.3    TT5F= 3264.    PT5/PT2= 77.9    M2= .558    PSI= 26.91    PCI= 24.70
      AT 1  RMS12=  .102,  RMS23=  .654,  RMS34=  .314          AT 4  RMS12=  .141,  RMS23=  .729,  RMS34= 3.070
             225.HZ  A( 4)=  .531RMSPSI,  A( 8)=  .594RMSPSI,  PHASE( 4 8)=   87.6DEG.
            1900.HZ  A( 4)=  .204RMSPSI,  A( 8)= 2.820RMSPSI,  PHASE( 4 8)=  -97.3DEG.
            2125.HZ  A( 4)=  .082RMSPSI,  A( 8)=  .226RMSPSI,  PHASE( 4 8)=  -79.9DEG.
            3800.HZ  A( 4)=  .058RMSPSI,  A( 8)=  .240RMSPSI,  PHASE( 4 8)=  -37.6DEG.
    6    F/A= .0492    ETAC= 42.5    TT5F= 2167.    PT5/PT2= 71.1    M2= .691    PSI= 21.29    PCI= 18.31
      AT 1  RMS12=  .118,  RMS23=  .142,  RMS34=  .054          AT 4  RMS12=  .234,  RMS23=  .406,  RMS34=  .075
             575.HZ  A( 4)=  .072RMSPSI,  A( 8)=  .286RMSPSI,  PHASE( 4 8)=    6.8DEG.
    7    F/A= .0450    ETAC= 42.5    TT5F= 2096.    PT5/PT2= 70.1    M2= .702    PSI= 20.98    PCI= 17.86
      AT 1  RMS12=  .071,  RMS23=  .155,  RMS34=  .056          AT 4  RMS12=  .210,  RMS23=  .550,  RMS34=  .084
             575.HZ  A( 4)=  .100RMSPSI,  A( 8)=  .433RMSPSI,  PHASE( 4 8)=    9.3DEG.
            1125.HZ  A( 4)=  .020RMSPSI,  A( 8)=  .165RMSPSI,  PHASE( 4 8)=  -47.0DEG.
    8    F/A= .0416    ETAC= 43.6    TT5F= 2054.    PT5/PT2= 69.3    M2= .704    PSI= 20.76    PCI= 17.55
      AT 1  RMS12=  .140,  RMS23=  .152,  RMS34=  .056          AT 4  RMS12=  .390,  RMS23=  .560,  RMS34=  .091
             550.HZ  A( 4)=  .058RMSPSI,  A( 8)=  .337RMSPSI,  PHASE( 4 8)=   10.1DEG.
            1100.HZ  A( 4)=  .012RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=   43.1DEG.
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8IN.CHAMB.    4IN. INLET    NO F.HOLD.    TT2=750R      UNIF.INJ.
    1    F/A=0.0000    ETAC=  0.0    TT5F=  782.    PT5/PT2= 47.4    M2= .720    PSI= 17.15    PCI=  8.82
    2    F/A= .0635    ETAC= 54.7    TT5F= 2909.    PT5/PT2= 81.3    M2= .508    PSI= 25.25    PCI= 24.02
      AT 4   RMS12=  .153,  RMS23=  .371,  RMS34= 1.140          AT 8  RMS12=  .148,  RMS23=  .366,  RMS34=  .233
             100.HZ  A( 4)=  .158RMSPSI,  A( 8)=  .146RMSPSI,  PHASE( 4 8)=    4.8DEG.
             200.HZ  A( 4)=  .155RMSPSI,  A( 8)=  .148RMSPSI,  PHASE( 4 8)=   19.6DEG.
             650.HZ  A( 4)=  .153RMSPSI,  A( 8)=  .173RMSPSI,  PHASE( 4 8)= -158.1DEG.
            1850.HZ  A( 4)= 1.080RMSPSI,  A( 8)=  .179RMSPSI,  PHASE( 4 8)=   35.7DEG.
            3700.HZ  A( 4)=  .123RMSPSI,  A( 8)=  .042RMSPSI,  PHASE( 4 8)=    3.6DEG.
            5550.HZ  A( 4)=  .107RMSPSI,  A( 8)=  .044RMSPSI,  PHASE( 4 8)=   39.3DEG.
    3    F/A= .0574    ETAC= 86.6    TT5F= 3490.    PT5/PT2= 83.4    M2= .465    PSI= 27.78    PCI= 26.12
      AT 4   RMS12=  .186,  RMS23=  .909,  RMS34= 3.050          AT 8  RMS12=  .185,  RMS23=  .911,  RMS34=  .838
             175.HZ  A( 4)=  .711RMSPSI,  A( 8)=  .712RMSPSI,  PHASE( 4 8)=   23.9DEG.
             400.HZ  A( 4)=  .151RMSPSI,  A( 8)=  .075RMSPSI,  PHASE( 4 8)=  103.2DEG.
             650.HZ  A( 4)=  .096RMSPSI,  A( 8)=  .160RMSPSI,  PHASE( 4 8)= -155.7DEG.
             800.HZ  A( 4)=  .109RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)= -132.7DEG.
            1650.HZ  A( 4)=  .304RMSPSI,  A( 8)=  .035RMSPSI,  PHASE( 4 8)=   85.7DEG.
            1850.HZ  A( 4)= 2.550RMSPSI,  A( 8)=  .198RMSPSI,  PHASE( 4 8)=  -63.9DEG.
            2025.HZ  A( 4)=  .407RMSPSI,  A( 8)=  .147RMSPSI,  PHASE( 4 8)=  133.5DEG.
            2250.HZ  A( 4)=  .447RMSPSI,  A( 8)=  .316RMSPSI,  PHASE( 4 8)=  159.7DEG.
            3675.HZ  A( 4)=  .255RMSPSI,  A( 8)=  .071RMSPSI,  PHASE( 4 8)=  107.4DEG.
            4100.HZ  A( 4)=  .169RMSPSI,  A( 8)=  .164RMSPSI,  PHASE( 4 8)=   22.5DEG.
            4500.HZ  A( 4)=  .277RMSPSI,  A( 8)=  .227RMSPSI,  PHASE( 4 8)=   31.7DEG.
            5525.HZ  A( 4)=  .233RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=  120.1DEG.
    4    F/A= .0564    ETAC= 87.4    TT5F= 3485.    PT5/PT2= 83.2    M2= .464    PSI= 27.75    PCI= 26.02
      AT 4   RMS12=  .306,  RMS23=  .725,  RMS34= 2.840          AT 8  RMS12=  .200,  RMS23=  .712,  RMS34=  .753
             175.HZ  A( 4)=  .588RMSPSI,  A( 8)=  .569RMSPSI,  PHASE( 4 8)=   22.5DEG.
            1650.HZ  A( 4)=  .244RMSPSI,  A( 8)=  .025RMSPSI,  PHASE( 4 8)=   84.3DEG.
            1850.HZ  A( 4)= 2.380RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)= -108.2DEG.
            2025.HZ  A( 4)=  .382RMSPSI,  A( 8)=  .158RMSPSI,  PHASE( 4 8)=  133.6DEG.
            2275.HZ  A( 4)=  .384RMSPSI,  A( 8)=  .286RMSPSI,  PHASE( 4 8)= -108.7DEG.
            3700.HZ  A( 4)=  .279RMSPSI,  A( 8)=  .082RMSPSI,  PHASE( 4 8)=  120.3DEG.
            4125.HZ  A( 4)=  .099RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)=   24.0DEG.
            4550.HZ  A( 4)=  .162RMSPSI,  A( 8)=  .151RMSPSI,  PHASE( 4 8)=   86.4DEG.
            5575.HZ  A( 4)=  .336RMSPSI,  A( 8)=  .154RMSPSI,  PHASE( 4 8)=  122.2DEG.
    5    F/A= .0532    ETAC= 87.3    TT5F= 3382.    PT5/PT2= 82.8    M2= .474    PSI= 27.15    PCI= 25.48
      AT 4   RMS12=  .296,  RMS23=  .806,  RMS34= 2.780          AT 8  RMS12=  .195,  RMS23=  .800,  RMS34=  .796
             200.HZ  A( 4)=  .656RMSPSI,  A( 8)=  .650RMSPSI,  PHASE( 4 8)=   26.6DEG.
            1650.HZ  A( 4)=  .272RMSPSI,  A( 8)=  .041RMSPSI,  PHASE( 4 8)=   61.5DEG.
            1850.HZ  A( 4)= 2.310RMSPSI,  A( 8)=  .174RMSPSI,  PHASE( 4 8)=  141.6DEG.
            2025.HZ  A( 4)=  .383RMSPSI,  A( 8)=  .188RMSPSI,  PHASE( 4 8)=  122.1DEG.
            2250.HZ  A( 4)=  .226RMSPSI,  A( 8)=  .126RMSPSI,  PHASE( 4 8)=  173.4DEG.
            3675.HZ  A( 4)=  .294RMSPSI,  A( 8)=  .073RMSPSI,  PHASE( 4 8)=  102.1DEG.
            4075.HZ  A( 4)=  .150RMSPSI,  A( 8)=  .147RMSPSI,  PHASE( 4 8)=   22.0DEG.
            4500.HZ  A( 4)=  .163RMSPSI,  A( 8)=  .177RMSPSI,  PHASE( 4 8)=   78.3DEG.
            5500.HZ  A( 4)=  .268RMSPSI,  A( 8)=  .160RMSPSI,  PHASE( 4 8)=  112.9DEG.
    6    F/A= .0500    ETAC= 70.2    TT5F= 2777.    PT5/PT2= 79.6    M2= .523    PSI= 24.58    PCI= 22.97
      AT 4   RMS12=  .235,  RMS23= 2.340,  RMS34= 2.550          AT 8  RMS12=  .212,  RMS23= 2.010,  RMS34= 1.090
             175.HZ  A( 4)= 2.150RMSPSI,  A( 8)= 1.860RMSPSI,  PHASE( 4 8)=   17.9DEG.
             350.HZ  A( 4)=  .443RMSPSI,  A( 8)=  .241RMSPSI,  PHASE( 4 8)=    2.3DEG.
            1550.HZ  A( 4)=  .572RMSPSI,  A( 8)=  .197RMSPSI,  PHASE( 4 8)=   87.5DEG.
            1725.HZ  A( 4)= 1.120RMSPSI,  A( 8)=  .370RMSPSI,  PHASE( 4 8)=   10.1DEG.
            1800.HZ  A( 4)= 1.440RMSPSI,  A( 8)=  .152RMSPSI,  PHASE( 4 8)=   31.0DEG.
            1900.HZ  A( 4)=  .768RMSPSI,  A( 8)=  .249RMSPSI,  PHASE( 4 8)=   11.5DEG.
            2050.HZ  A( 4)=  .353RMSPSI,  A( 8)=  .380RMSPSI,  PHASE( 4 8)=  164.5DEG.
            2175.HZ  A( 4)=  .199RMSPSI,  A( 8)=  .328RMSPSI,  PHASE( 4 8)=  159.1DEG.
            3600.HZ  A( 4)=  .214RMSPSI,  A( 8)=  .348RMSPSI,  PHASE( 4 8)=   40.0DEG.
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   TTO=1250.    UNIF.INJ.
   1   F/A=0.0000   ETAC=  0.0   TT5F= 1236.   PT5/PT2= 46.5   M2= .749   PSI= 21.90   PCI= 11.14
   2   F/A= .0620   ETAC= 71.4   TT5F= 3398.   PT5/PT2= 76.5   M2= .616   PSI= 27.12   PCI= 25.14
     AT 4  RMS12=  .223,  RMS23=  .452,  RMS34=  .092         AT 8  RMS12=  .200,  RMS23=  .355,  RMS34=  .088
           50.HZ  A( 4)=  .219RMSPSI,  A( 8)=  .198RMSPSI,  PHASE( 4 8)=    1.6DEG.
          600.HZ  A( 4)=  .233RMSPSI,  A( 8)=  .155RMSPSI,  PHASE( 4 8)= -161.9DEG.
          825.HZ  A( 4)=  .134RMSPSI,  A( 8)=  .120RMSPSI,  PHASE( 4 8)= -156.5DEG.
         1500.HZ  A( 4)=  .050RMSPSI,  A( 8)=  .051RMSPSI,  PHASE( 4 8)=   -1.7DEG.
   3   F/A= .0600   ETAC= 56.5   TT5F= 3222.   PT5/PT2= 75.3   M2= .635   PSI= 26.33   PCI= 24.21
     AT 4  RMS12=  .203,  RMS23=  .346,  RMS34=  .075         AT 8  RMS12=  .192,  RMS23=  .293,  RMS34=  .076
          100.HZ  A( 4)=  .145RMSPSI,  A( 8)=  .126RMSPSI,  PHASE( 4 8)=     .7DEG.
          600.HZ  A( 4)=  .153RMSPSI,  A( 8)=  .086RMSPSI,  PHASE( 4 8)= -164.6DEG.
          800.HZ  A( 4)=  .090RMSPSI,  A( 8)=  .099RMSPSI,  PHASE( 4 8)= -150.0DEG.
          900.HZ  A( 4)=  .107RMSPSI,  A( 8)=  .061RMSPSI,  PHASE( 4 8)= -108.6DEG.
   4   F/A= .0545   ETAC= 55.0   TT5F= 2800.   PT5/PT2= 72.3   M2= .685   PSI= 24.18   PCI= 21.33
     AT 4  RMS12=  .168,  RMS23=  .322,  RMS34=  .066         AT 8  RMS12=  .160,  RMS23=  .262,  RMS34=  .080
          625.HZ  A( 4)=  .176RMSPSI,  A( 8)=  .126RMSPSI,  PHASE( 4 8)= -148.2DEG.
          950.HZ  A( 4)=  .087RMSPSI,  A( 8)=  .025RMSPSI,  PHASE( 4 8)=   96.7DEG.
   5   F/A= .0497   ETAC= 50.9   TT5F= 2604.   PT5/PT2= 70.4   M2= .708   PSI= 23.38   PCI= 20.01
     AT 4  RMS12=  .112,  RMS23=  .290,  RMS34=  .065         AT 8  RMS12=  .109,  RMS23=  .266,  RMS34=  .078
          100.HZ  A( 4)=  .119RMSPSI,  A( 8)=  .099RMSPSI,  PHASE( 4 8)=     .4DEG.
          650.HZ  A( 4)=  .132RMSPSI,  A( 8)=  .035RMSPSI,  PHASE( 4 8)= -146.9DEG.
   6   F/A= .0450   ETAC= 52.0   TT5F= 2532.   PT5/PT2= 69.6   M2= .712   PSI= 23.15   PCI= 19.83
     AT 4  RMS12=  .245,  RMS23=  .323,  RMS34=  .076         AT 8  RMS12=  .227,  RMS23=  .307,  RMS34=  .093
          625.HZ  A( 4)=  .078RMSPSI,  A( 8)=  .061RMSPSI,  PHASE( 4 8)= -161.1DEG.
          925.HZ  A( 4)=  .089RMSPSI,  A( 8)=  .057RMSPSI,  PHASE( 4 8)=  -92.6DEG.
         1050.HZ  A( 4)=  .039RMSPSI,  A( 8)=  .035RMSPSI,  PHASE( 4 8)=  116.6DEG.
   7   F/A= .0410   ETAC= 56.5   TT5F= 2553.   PT5/PT2= 69.3   M2= .711   PSI= 23.19   PCI= 19.99
     AT 4  RMS12=  .223,  RMS23=  .393,  RMS34=  .092         AT 8  RMS12=  .229,  RMS23=  .381,  RMS34=  .110
          100.HZ  A( 4)=  .207RMSPSI,  A( 8)=  .196RMSPSI,  PHASE( 4 8)=    6.0DEG.
          600.HZ  A( 4)=  .179RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)= -170.5DEG.
          925.HZ  A( 4)=  .091RMSPSI,  A( 8)=  .066RMSPSI,  PHASE( 4 8)= -119.3DEG.
         1075.HZ  A( 4)=  .032RMSPSI,  A( 8)=  .106RMSPSI,  PHASE( 4 8)=   96.1DEG.
   8   F/A= .0352   ETAC= 60.7   TT5F= 2494.   PT5/PT2= 68.2   M2= .717   PSI= 22.99   PCI= 19.92
     AT 4  RMS12=  .412,  RMS23=  .544,  RMS34=  .149         AT 8  RMS12=  .426,  RMS23=  .478,  RMS34=  .191
          100.HZ  A( 4)=  .238RMSPSI,  A( 8)=  .207RMSPSI,  PHASE( 4 8)=   19.6DEG.
          175.HZ  A( 4)=  .241RMSPSI,  A( 8)=  .138RMSPSI,  PHASE( 4 8)=   27.8DEG.
          575.HZ  A( 4)=  .199RMSPSI,  A( 8)=  .137RMSPSI,  PHASE( 4 8)=  178.7DEG.
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   LOW FLOW      UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F= 1021.    PT5/PT2= 47.4     M2= .746    PSI= 11.61    PCI=  6.08
   2    F/A= .0651    ETAC= 43.8    TT5F= 2400.    PT5/PT2= 7?.?     M2= .653    PSI= 13.57    PCI= 12.26
     AT 4  RMS12=  .114,  RMS23=  .303,  RMS34=  .061           AT 8  RMS12=  .107,  RMS23=  .245,  RMS34=  .052
          225.HZ  A( 4)=  .074RMSPSI,  A( 8)=  .067RMSPSI,  PHASE( 4 8)=   22.1DEG.
          575.HZ  A( 4)=  .226RMSPSI,  A( 8)=  .161RMSPSI,  PHASE( 4 8)= -162.0DEG.
   3    F/A= .0617    ETAC= 41.9    TT5F= 2309.    PT5/PT2= 73.3     M2= .665    PSI= 13.00    PCI= 11.49
     AT 4  RMS12=  .095,  RMS23=  .573,  RMS34=  .062           AT 8  RMS12=  .088,  RMS23=  .414,  RMS34=  .061
          575.HZ  A( 4)=  .503RMSPSI,  A( 8)=  .356RMSPSI,  PHASE( 4 8)= -159.7DEG.
         1125.HZ  A( 4)=  .095RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=   37.6DEG.
   4    F/A= .0567    ETAC= 39.5    TT5F= 2186.    PT5/PT2= 72.0     M2= .683    PSI= 12.78    PCI= 11.14
     AT 4  RMS12=  .129,  RMS23=  .391,  RMS34=  .053           AT 8  RMS12=  .120,  RMS23=  .285,  RMS34=  .060
          575.HZ  A( 4)=  .344RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)= -164.1DEG.
   5    F/A= .0498    ETAC= 38.8    TT5F= 2066.    PT5/PT2= 70.3     M2= .703    PSI= 12.38    PCI= 10.57
     AT 4  RMS12=  .170,  RMS23=  .337,  RMS34=  .064           AT 8  RMS12=  .167,  RMS23=  .299,  RMS34=  .067
           50.HZ  A( 4)=  .157RMSPSI,  A( 8)=  .151RMSPSI,  PHASE( 4 8)=    3.5DEG.
          550.HZ  A( 4)=  .321RMSPSI,  A( 8)=  .217RMSPSI,  PHASE( 4 8)= -168.5DEG.
         1125.HZ  A( 4)=  .042RMSPSI,  A( 8)=  .046RMSPSI,  PHASE( 4 8)=   24.4DEG.
   6    F/A= .0451    ETAC= 38.4    TT5F= 1981.    PT5/PT2= 68.9     M2= .713    PSI= 12.20    PCI= 10.28
     AT 4  RMS12=  .164,  RMS23=  .364,  RMS34=  .077           AT 8  RMS12=  .140,  RMS23=  .270,  RMS34=  .086
          550.HZ  A( 4)=  .273RMSPSI,  A( 8)=  .201RMSPSI,  PHASE( 4 8)=  176.7DEG.
   7    F/A= .0404    ETAC=  2.0    TT5F= 1049.    PT5/PT2= 48.2     M2= .735    PSI= 11.73    PCI=  6.29
     AT 4  RMS12=  .072,  RMS23=  .111,  RMS34=  .083           AT 8  RMS12=  .079,  RMS23=  .208,  RMS34=  .134
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   40% NOZ.      UNIF.INJ.
   1   F/A=0.0000    ETAC=  0.0     TT5F=  983.    PT5/PT2= 59.1    M2= .792    PSI= 14.58    PCI= 11.34
     AT 4  RMS12=  .070,  RMS23=  .137,  RMS34=  .116            AT 8  RMS12=  .082,  RMS23=  .373,  RMS34=  .147
   2   F/A= .0662    ETAC= 79.0     TT5F= 3564.    PT5/PT2= 87.0    M2= .431    PSI= 27.52    PCI= 26.96
     AT 4  RMS12=  .189,  RMS23= 1.710,  RMS34=  .231            AT 8  RMS12=  .164,  RMS23= 1.390,  RMS34=  .292
          150.HZ   A( 4)=  .198RMSPSI,   A( 8)=  .165RMSPSI,   PHASE( 4 8)=    9.50DEG.
          650.HZ   A( 4)= 1.600RMSPSI,   A( 8)= 1.290RMSPSI,   PHASE( 4 8)= -172.50DEG.
         1275.HZ   A( 4)=  .246RMSPSI,   A( 8)=  .246RMSPSI,   PHASE( 4 8)=   31.60DEG.
   3   F/A= .0611    ETAC= 70.2     TT5F= 3200.    PT5/PT2= 85.7    M2= .462    PSI= 25.69    PCI= 25.21
     AT 4  RMS12=  .321,  RMS23= 1.030,  RMS34=  .131            AT 8  RMS12=  .292,  RMS23=  .351,  RMS34=  .099
           50.HZ   A( 4)=  .294RMSPSI,   A( 8)=  .266RMSPSI,   PHASE( 4 8)=    1.50DEG.
          650.HZ   A( 4)=  .968RMSPSI,   A( 8)=  .795RMSPSI,   PHASE( 4 8)= -171.90DEG.
         1300.HZ   A( 4)=  .093RMSPSI,   A( 8)=  .063RMSPSI,   PHASE( 4 8)=   38.10DEG.
   4   F/A= .0564    ETAC= 54.4     TT5F= 2630.    PT5/PT2= 84.0    M2= .522    PSI= 22.68    PCI= 22.22
     AT 4  RMS12=  .282,  RMS23=  .346,  RMS34=  .071            AT 8  RMS12=  .263,  RMS23=  .291,  RMS34=  .062
           50.HZ   A( 4)=  .292RMSPSI,   A( 8)=  .271RMSPSI,   PHASE( 4 8)=    1.70DEG.
          175.HZ   A( 4)=  .129RMSPSI,   A( 8)=  .099RMSPSI,   PHASE( 4 8)=   14.20DEG.
          675.HZ   A( 4)=  .190RMSPSI,   A( 8)=  .165RMSPSI,   PHASE( 4 8)= -172.30DEG.
   5   F/A= .0515    ETAC= 72.8     TT5F= 3058.    PT5/PT2= 85.5    M2= .481    PSI= 24.68    PCI= 24.28
     AT 4  RMS12=  .268,  RMS23=  .364,  RMS34= 1.410            AT 8  RMS12=  .254,  RMS23=  .336,  RMS34=  .576
           50.HZ   A( 4)=  .263RMSPSI,   A( 8)=  .248RMSPSI,   PHASE( 4 8)=    3.20DEG.
          225.HZ   A( 4)=  .390RMSPSI,   A( 8)=  .404RMSPSI,   PHASE( 4 8)= -141.20DEG.
          600.HZ   A( 4)=  .454RMSPSI,   A( 8)=  .041RMSPSI,   PHASE( 4 8)=  120.80DEG.
          650.HZ   A( 4)=  .172RMSPSI,   A( 8)=  .181RMSPSI,   PHASE( 4 8)= -158.80DEG.
         1900.HZ   A( 4)=  .886RMSPSI,   A( 8)=  .076RMSPSI,   PHASE( 4 8)=   40.10DEG.
   6   F/A= .0462    ETAC= 74.3     TT5F= 2948.    PT5/PT2= 84.7    M2= .494    PSI= 24.07    PCI= 23.49
     AT 4  RMS12=  .138,  RMS23=  .366,  RMS34= 2.080            AT 8  RMS12=  .147,  RMS23=  .357,  RMS34=  .707
          200.HZ   A( 4)=  .156RMSPSI,   A( 8)=  .136RMSPSI,   PHASE( 4 8)=   28.10DEG.
          650.HZ   A( 4)=  .133RMSPSI,   A( 8)=  .153RMSPSI,   PHASE( 4 8)= -156.30DEG.
         1875.HZ   A( 4)= 1.240RMSPSI,   A( 8)=  .081RMSPSI,   PHASE( 4 8)=   51.60DEG.
         2200.HZ   A( 4)=  .629RMSPSI,   A( 8)=  .460RMSPSI,   PHASE( 4 8)= -129.10DEG.
         3800.HZ   A( 4)=  .132RMSPSI,   A( 8)=  .037RMSPSI,   PHASE( 4 8)= -153.60DEG.
         4075.HZ   A( 4)=  .084RMSPSI,   A( 8)=  .202RMSPSI,   PHASE( 4 8)=  -47.70DEG.
         5950.HZ   A( 4)=  .859RMSPSI,   A( 8)=  .056RMSPSI,   PHASE( 4 8)= -126.10DEG.
   7   F/A= .0417    ETAC= 68.9     TT5F= 2672.    PT5/PT2= 83.6    M2= .524    PSI= 22.63    PCI= 22.02
     AT 4  RMS12=  .234,  RMS23=  .362,  RMS34= 2.160            AT 8  RMS12=  .163,  RMS23=  .296,  RMS34=  .961
          175.HZ   A( 4)=  .181RMSPSI,   A( 8)=  .137RMSPSI,   PHASE( 4 8)=   15.50DEG.
          500.HZ   A( 4)=  .103RMSPSI,   A( 8)=  .116RMSPSI,   PHASE( 4 8)= -144.40DEG.
         1825.HZ   A( 4)= 1.210RMSPSI,   A( 8)=  .034RMSPSI,   PHASE( 4 8)=   79.70DEG.
         2125.HZ   A( 4)= 1.250RMSPSI,   A( 8)=  .723RMSPSI,   PHASE( 4 8)=  160.00DEG.
         3950.HZ   A( 4)=  .113RMSPSI,   A( 8)=  .211RMSPSI,   PHASE( 4 8)=  -68.80DEG.
         5825.HZ   A( 4)=  .533RMSPSI,   A( 8)=  .050RMSPSI,   PHASE( 4 8)=  119.50DEG.
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   50% NOZ.      UNIF.INJ.
   1   F/A=0.0000   ETAC=  0.0    TT5F=  954.    PT5/PT2= 39.2    M2= .792    PSI= 21.84    PCI= 10.15
   2   F/A= .0648   ETAC= 30.1    TT5F= 1968.    PT5/PT2= 60.1    M2= .776    PSI= 22.36    PCI= 15.84
      AT 4  RMS12=  .381,  RMS23=  .351,  RMS34=  .146          AT 8  RMS12=  .401,  RMS23=  .347,  RMS34=  .115
            50.HZ  A( 4)=  .387RMSPSI,  A( 8)=  .404RMSPSI,  PHASE( 4 8)=    8.9DEG.
           625.HZ  A( 4)=  .126RMSPSI,  A( 8)=  .087RMSPSI,  PHASE( 4 8)= -158.1DEG.
          1800.HZ  A( 4)=  .061RMSPSI,  A( 8)=  .052RMSPSI,  PHASE( 4 8)=  119.5DEG.
   3   F/A= .0601   ETAC= 31.8    TT5F= 1987.    PT5/PT2= 60.2    M2= .778    PSI= 22.44    PCI= 16.00
      AT 4  RMS12=  .253,  RMS23=  .321,  RMS34=  .159          AT 8  RMS12=  .259,  RMS23=  .291,  RMS34=  .118
           200.HZ  A( 4)=  .118RMSPSI,  A( 8)=  .092RMSPSI,  PHASE( 4 8)=   17.6DEG.
           625.HZ  A( 4)=  .132RMSPSI,  A( 8)=  .109RMSPSI,  PHASE( 4 8)= -168.1DEG.
          1800.HZ  A( 4)=  .078RMSPSI,  A( 8)=  .064RMSPSI,  PHASE( 4 8)=  122.5DEG.
   4   F/A= .0542   ETAC= 34.9    TT5F= 2023.    PT5/PT2= 60.4    M2= .780    PSI= 22.45    PCI= 16.51
      AT 4  RMS12=  .289,  RMS23=  .406,  RMS34=  .168          AT 8  RMS12=  .308,  RMS23=  .370,  RMS34=  .132
            50.HZ  A( 4)=  .285RMSPSI,  A( 8)=  .307RMSPSI,  PHASE( 4 8)=    6.9DEG.
           225.HZ  A( 4)=  .138RMSPSI,  A( 8)=  .078RMSPSI,  PHASE( 4 8)=   38.5DEG.
           600.HZ  A( 4)=  .136RMSPSI,  A( 8)=  .100RMSPSI,  PHASE( 4 8)= -167.0DEG.
          1775.HZ  A( 4)=  .094RMSPSI,  A( 8)=  .083RMSPSI,  PHASE( 4 8)=  123.2DEG.
   5   F/A= .0500   ETAC= 37.7    TT5F= 2044.    PT5/PT2= 60.6    M2= .780    PSI= 22.28    PCI= 16.76
      AT 4  RMS12=  .340,  RMS23=  .439,  RMS34=  .192          AT 8  RMS12=  .377,  RMS23=  .405,  RMS34=  .181
            50.HZ  A( 4)=  .320RMSPSI,  A( 8)=  .348RMSPSI,  PHASE( 4 8)=    9.3DEG.
           225.HZ  A( 4)=  .277RMSPSI,  A( 8)=  .165RMSPSI,  PHASE( 4 8)=   41.9DEG.
           625.HZ  A( 4)=  .123RMSPSI,  A( 8)=  .080RMSPSI,  PHASE( 4 8)= -174.4DEG.
          1750.HZ  A( 4)=  .115RMSPSI,  A( 8)=  .116RMSPSI,  PHASE( 4 8)=  120.6DEG.
          1950.HZ  A( 4)=  .027RMSPSI,  A( 8)=  .070RMSPSI,  PHASE( 4 8)= -112.7DEG.
   6   F/A= .0450   ETAC= 42.4    TT5F= 2090.    PT5/PT2= 61.0    M2= .761    PSI= 22.20    PCI= 17.36
      AT 4  RMS12=  .463,  RMS23=  .871,  RMS34=  .208          AT 8  RMS12=  .438,  RMS23=  .663,  RMS34=  .204
            50.HZ  A( 4)=  .429RMSPSI,  A( 8)=  .404RMSPSI,  PHASE( 4 8)=    5.5DEG.
           200.HZ  A( 4)=  .592RMSPSI,  A( 8)=  .399RMSPSI,  PHASE( 4 8)=   36.4DEG.
           575.HZ  A( 4)=  .233RMSPSI,  A( 8)=  .127RMSPSI,  PHASE( 4 8)= -176.2DEG.
          1725.HZ  A( 4)=  .125RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=  122.5DEG.
          1925.HZ  A( 4)=  .030RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)= -109.1DEG.
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8IN.CHAMB.   4IN. INLET   NO F.HOLD.   L/D=1.5      UNIF.INJ.
    1    F/A=0.0000     ETAC=  0.0     TT5F=  570.     PT5/PT2= 47.0     M2= .704    PSI= 15.02     PCI=  5.12
      AT 4  RMS12=  .062,  RMS23=  .130,  RMS34=  .057               AT 8  RMS12=  .099,  RMS23=  .203,  RMS34=  .082
    2    F/A=0.0000     ETAC=  0.0     TT5F=  976.     PT5/PT2= 45.7     M2= .728    PSI= 20.56     PCI=  6.83
      AT 4  RMS12=  .064,  RMS23=  .168,  RMS34=  .077               AT 8  RMS12=  .049,  RMS23=  .248,  RMS34=  .104
    3    F/A= .0647     ETAC= 12.1     TT5F= 1383.     PT5/PT2= 57.0     M2= .695    PSI= 21.77     PCI= 10.61
      AT 4  RMS12=  .791,  RMS23=  .755,  RMS34=  .116               AT 8  RMS12=  .758,  RMS23=  .728,  RMS34=  .136
             75.HZ   A( 4)=  .782RMSPSI,  A( 8)=  .757RMSPSI,  PHASE( 4 8)=       .7DEG.
    4    F/A= .0594     ETAC=  9.6     TT5F= 1296.     PT5/PT2= 54.7     M2= .700    PSI= 21.66     PCI=  8.97
      AT 4  RMS12=  .814,  RMS23=  .765,  RMS34=  .107               AT 8  RMS12=  .768,  RMS23=  .722,  RMS34=  .139
             75.HZ   A( 4)=  .778RMSPSI,  A( 8)=  .734RMSPSI,  PHASE( 4 8)=       .8DEG.
    5    F/A= .0553     ETAC=  9.3     TT5F= 1279.     PT5/PT2= 54.1     M2= .703    PSI= 21.59     PCI=  8.75
      AT 4  RMS12=  .077,  RMS23=  .160,  RMS34=  .068               AT 8  RMS12=  .098,  RMS23=  .171,  RMS34=  .093
    6    F/A= .0487     ETAC=  8.9     TT5F= 1242.     PT5/PT2= 53.0     M2= .704    PSI= 21.53     PCI=  8.30
           1625.HZ   A( 4)=  .047RMSPSI,  A( 8)=  .072RMSPSI,  PHASE( 4 8)=    56.2DEG.
      AT 4  RMS12=  .080,  RMS23=  .159,  RMS34=  .080               AT 8  RMS12=  .087,  RMS23=  .190,  RMS34=  .132
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8IN.CHAMB.    4.75 INLET    NO F.HOLD.    BASELINE      UNIF.INJ.
    1     F/A=0.0000     ETAC=  0.0      TT5F=  986.      PT5/PT2= 68.4      M2= .860      PSI= 11.80      PCI= 11.20
    2     F/A= .0643     ETAC= 58.1      TT5F= 2867.      PT5/PT2= 87.8      M2= .440      PSI= 24.30      PCI= 23.90
      AT 4  RMS12=  .141,  RMS23=  .260,  RMS34=  .590              AT 8  RMS12=  .125,  RMS23=  .233,  RMS34=  .122
            175.HZ  A( 4)=  .124RMSPSI,  A( 8)=  .105RMSPSI,  PHASE( 4 8)=   15.5DEG.
            625.HZ  A( 4)=  .150RMSPSI,  A( 8)=  .134RMSPSI,  PHASE( 4 8)= -158.2DEG.
           1850.HZ  A( 4)=  .523RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)=   64.6DEG.
    3     F/A= .0580     ETAC= 36.7      TT5F= 2119.      PT5/PT2= 86.5      M2= .540      PSI= 19.80      PCI= 19.90
      AT 4  RMS12=  .110,  RMS23=  .329,  RMS34=  .095              AT 8  RMS12=  .098,  RMS23=  .288,  RMS34=  .084
            200.HZ  A( 4)=  .120RMSPSI,  A( 8)=  .103RMSPSI,  PHASE( 4 8)=   31.8DEG.
            650.HZ  A( 4)=  .249RMSPSI,  A( 8)=  .228RMSPSI,  PHASE( 4 8)= -164.8DEG.
    4     F/A= .0536     ETAC= 31.4      TT5F= 1917.      PT5/PT2= 86.1      M2= .580      PSI= 18.10      PCI= 18.20
      AT 4  RMS12=  .095,  RMS23=  .290,  RMS34=  .090              AT 8  RMS12=  .091,  RMS23=  .226,  RMS34=  .088
            175.HZ  A( 4)=  .173RMSPSI,  A( 8)=  .127RMSPSI,  PHASE( 4 8)=   26.7DEG.
            450.HZ  A( 4)=  .098RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)= -173.5DEG.
            650.HZ  A( 4)=  .125RMSPSI,  A( 8)=  .108RMSPSI,  PHASE( 4 8)= -164.9DEG.
    5     F/A= .0488     ETAC= 28.6      TT5F= 1784.      PT5/PT2= 85.6      M2= .620      PSI= 16.90      PCI= 17.20
      AT 4  RMS12=  .101,  RMS23=  .376,  RMS34=  .090              AT 8  RMS12=  .097,  RMS23=  .237,  RMS34=  .088
            175.HZ  A( 4)=  .101RMSPSI,  A( 8)=  .074RMSPSI,  PHASE( 4 8)=   27.1DEG.
            475.HZ  A( 4)=  .309RMSPSI,  A( 8)=  .153RMSPSI,  PHASE( 4 8)= -172.5DEG.
    6     F/A= .0446     ETAC= 28.9      TT5F= 1742.      PT5/PT2= 85.3      M2= .640      PSI= 16.50      PCI= 16.90
      AT 4  RMS12=  .101,  RMS23=  .637,  RMS34=  .108              AT 8  RMS12=  .093,  RMS23=  .379,  RMS34=  .144
            175.HZ  A( 4)=  .263RMSPSI,  A( 8)=  .171RMSPSI,  PHASE( 4 8)=   25.2DEG.
            450.HZ  A( 4)=  .510RMSPSI,  A( 8)=  .268RMSPSI,  PHASE( 4 8)=  178.5DEG.
    7     F/A= .0401     ETAC= 28.8      TT5F= 1680.      PT5/PT2= 84.7      M2= .660      PSI= 16.00      PCI= 16.50
      AT 4  RMS12=  .195,  RMS23=  .558,  RMS34=  .163              AT 8  RMS12=  .184,  RMS23=  .352,  RMS34=  .124
            450.HZ  A( 4)=  .470RMSPSI,  A( 8)=  .247RMSPSI,  PHASE( 4 8)=  167.0DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   TT0=750R     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F=  744.     PT5/PT2= 68.4     M2= .840    PSI= 10.50    PCI=  9.88
   2    F/A= .0654    ETAC= 78.1     TT5F= 3402.     PT5/PT2= 90.1     M2= .340    PSI= 27.20    PCI= 26.10
     AT 4  RMS12=  .230,  RMS23= 1.720,  RMS34= 2.130           AT 8  RMS12=  .201,  RMS23= 1.790,  RMS34=  .664
           125.HZ  A( 4)= 1.450RMSPSI,  A( 8)= 1.520RMSPSI,  PHASE( 4 8)=    8.2DEG.
          1775.HZ  A( 4)= 1.320RMSPSI,  A( 8)=  .137RMSPSI,  PHASE( 4 8)=   12.2DEG.
          2300.HZ  A( 4)=  .497RMSPSI,  A( 8)=  .285RMSPSI,  PHASE( 4 8)=  -80.4DEG.
   3    F/A= .0584    ETAC= 59.3     TT5F= 2650.     PT5/PT2= 90.6     M2= .410    PSI= 22.90    PCI= 22.50
     AT 4  RMS12=  .183,  RMS23= 1.770,  RMS34= 1.920           AT 8  RMS12=  .181,  RMS23= 1.550,  RMS34=  .496
           125.HZ  A( 4)= 1.680RMSPSI,  A( 8)= 1.780RMSPSI,  PHASE( 4 8)=    9.7DEG.
           550.HZ  A( 4)=  .495RMSPSI,  A( 8)=  .481RMSPSI,  PHASE( 4 8)= -164.4DEG.
          1675.HZ  A( 4)= 1.190RMSPSI,  A( 8)=  .194RMSPSI,  PHASE( 4 8)=   16.6DEG.
     AT 4  RMS12=  .251,  RMS23= 1.550,  RMS34= 1.200           AT 6  RMS12=  .261,  RMS23= 1.500,  RMS34=  .840
           125.HZ  A( 4)= 1.030RMSPSI,  A( 6)= 1.050RMSPSI,  PHASE( 4 6)=     .3DEG.
           550.HZ  A( 4)=  .993RMSPSI,  A( 6)= 1.050RMSPSI,  PHASE( 4 6)=   -1.8DEG.
          1075.HZ  A( 4)=  .282RMSPSI,  A( 6)=  .295RMSPSI,  PHASE( 4 6)=  -56.9DEG.
          1725.HZ  A( 4)=  .608RMSPSI,  A( 6)=  .431RMSPSI,  PHASE( 4 6)=  172.4DEG.
          1600.HZ  A( 4)=  .473RMSPSI,  A( 6)=  .304RMSPSI,  PHASE( 4 6)=  174.8DEG.
          1825.HZ  A( 4)=  .462RMSPSI,  A( 6)=  .300RMSPSI,  PHASE( 4 6)=  162.3DEG.
   4    F/A= .0537    ETAC= 49.6     TT5F= 2257.     PT5/PT2= 87.7     M2= .430    PSI= 21.50    PCI= 20.90
     AT 4  RMS12=  .269,  RMS23= 1.140,  RMS34= 1.150           AT 8  RMS12=  .260,  RMS23= 1.050,  RMS34=  .399
           150.HZ  A( 4)=  .538RMSPSI,  A( 8)=  .414RMSPSI,  PHASE( 4 8)=   18.5DEG.
           550.HZ  A( 4)=  .867RMSPSI,  A( 8)=  .852RMSPSI,  PHASE( 4 8)= -158.7DEG.
          1100.HZ  A( 4)=  .195RMSPSI,  A( 8)=  .142RMSPSI,  PHASE( 4 8)=   63.1DEG.
          1650.HZ  A( 4)=  .727RMSPSI,  A( 8)=  .167RMSPSI,  PHASE( 4 8)=   40.0DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   TTO=1250R    UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F= 1225.     PT5/PT2= 68.2     M2= .859    PSI= 13.32    PCI= 12.47
   2    F/A= .0654    ETAC= 70.9     TT5F= 3436.     PT5/PT2= 88.3     M2= .455    PSI= 26.30    PCI= 26.07
     AT 4  RMS12=  .078,  RMS23=  .217,  RMS34=  .908         AT 8  RMS12=  .075,  RMS23=  .203,  RMS34=  .140
          175.HZ  A( 4)=  .107RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=   11.50EG.
         1950.HZ  A( 4)=  .787RMSPSI,  A( 8)=  .064RMSPSI,  PHASE( 4 8)=   55.00EG.
   3    F/A= .0600    ETAC= 73.0     TT5F= 3418.     PT5/PT2= 88.4     M2= .460    PSI= 26.10    PCI= 25.89
     AT 4  RMS12=  .156,  RMS23=  .216,  RMS34= 1.390         AT 8  RMS12=  .157,  RMS23=  .219,  RMS34=  .248
          225.HZ  A( 4)=  .124RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)=   28.10EG.
         1950.HZ  A( 4)= 1.090RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=   47.30EG.
   4    F/A= .0552    ETAC= 74.3     TT5F= 3357.     PT5/PT2= 88.4     M2= .468    PSI= 25.79    PCI= 25.61
     AT 4  RMS12=  .200,  RMS23=  .255,  RMS34= 1.350         AT 8  RMS12=  .121,  RMS23=  .247,  RMS34=  .322
         1925.HZ  A( 4)=  .919RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)=   47.00EG.
         3875.HZ  A( 4)=  .241RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=  -98.10EG.
          225.HZ  A( 4)=  .176RMSPSI,  A( 8)=  .161RMSPSI,  PHASE( 4 8)=   29.10EG.
   5    F/A= .0497    ETAC= 73.7     TT5F= 3205.     PT5/PT2= 87.8     M2= .483    PSI= 24.78    PCI= 24.63
     AT 4  RMS12=  .216,  RMS23=  .257,  RMS34= 1.930         AT 8  RMS12=  .091,  RMS23=  .236,  RMS34=  .437
          200.HZ  A( 4)=  .159RMSPSI,  A( 8)=  .142RMSPSI,  PHASE( 4 8)=   28.50EG.
         1912.HZ  A( 4)= 1.510RMSPSI,  A( 8)=  .200RMSPSI,  PHASE( 4 8)=   53.00EG.
         3825.HZ  A( 4)=  .245RMSPSI,  A( 8)=  .171RMSPSI,  PHASE( 4 8)= -151.00EG.
   6    F/A= .0439    ETAC= 68.7     TT5F= 2926.     PT5/PT2= 87.2     M2= .519    PSI= 23.02    PCI= 22.96
     AT 4  RMS12=  .158,  RMS23=  .282,  RMS34= 1.930         AT 8  RMS12=  .129,  RMS23=  .274,  RMS34=  .712
         1900.HZ  A( 4)= 1.510RMSPSI,  A( 8)=  .234RMSPSI,  PHASE( 4 8)=   65.70EG.
         2150.HZ  A( 4)=  .353RMSPSI,  A( 8)=  .372RMSPSI,  PHASE( 4 8)= -123.70EG.
         3775.HZ  A( 4)=  .267RMSPSI,  A( 8)=  .141RMSPSI,  PHASE( 4 8)=  167.80EG.
   7    F/A= .0410    ETAC= 67.9     TT5F= 2811.     PT5/PT2= 86.8     M2= .529    PSI= 22.52    PCI= 22.44
     AT 4  RMS12=  .120,  RMS23=  .258,  RMS34= 1.820         AT 8  RMS12=  .091,  RMS23=  .234,  RMS34=  .917
         1850.HZ  A( 4)= 1.430RMSPSI,  A( 8)=  .280RMSPSI,  PHASE( 4 8)=   70.70EG.
         2100.HZ  A( 4)=  .471RMSPSI,  A( 8)=  .691RMSPSI,  PHASE( 4 8)= -123.70EG.
         3700.HZ  A( 4)=  .191RMSPSI,  A( 8)=  .111RMSPSI,  PHASE( 4 8)=  179.20EG.
         3950.HZ  A( 4)=  .281RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)=  -46.00EG.
   8    F/A= .0352    ETAC= 66.4     TT5F= 2599.     PT5/PT2= 85.8     M2= .556    PSI= 21.22    PCI= 21.15
     AT 4  RMS12=  .145,  RMS23=  .321,  RMS34= 2.120         AT 8  RMS12=  .083,  RMS23=  .268,  RMS34= 1.110
         1825.HZ  A( 4)= 1.650RMSPSI,  A( 8)=  .358RMSPSI,  PHASE( 4 8)=   69.00EG.
         2050.HZ  A( 4)=  .554RMSPSI,  A( 8)=  .806RMSPSI,  PHASE( 4 8)= -132.70EG.
         3650.HZ  A( 4)=  .313RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)=  157.70EG.
         3859.HZ  A( 4)=  .194RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=  -55.90EG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   LOW FLOW    UNIF.INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  975.   PT5/PT2= 68.2   M2= .850   PSI=  7.17   PCI=  6.90
  2   F/A= .0654   ETAC= 51.8   TT5F= 2663.   PT5/PT2= 87.7   M2= .460   PSI= 14.00   PCI= 13.80
    AT 4  RMS12=  .043,  RMS23=  .244,  RMS34=  .584        AT 8  RMS12=  .041,  RMS23=  .251,  RMS34=  .136
          200.HZ  A( 4)=  .169RMSPSI,  A( 8)=  .154RMSPSI,  PHASE( 4 8)=   27.0DEG.
          625.HZ  A( 4)=  .124RMSPSI,  A( 8)=  .155RMSPSI,  PHASE( 4 8)= -155.2DEG.
         1800.HZ  A( 4)=  .510RMSPSI,  A( 8)=  .084RMSPSI,  PHASE( 4 8)=   35.8DEG.
  3   F/A= .0610   ETAC= 42.3   TT5F= 2317.   PT5/PT2= 89.7   M2= .530   PSI= 12.10   PCI= 12.30
    AT 4  RMS12=  .074,  RMS23=  .353,  RMS34=  .078        AT 8  RMS12=  .070,  RMS23=  .256,  RMS34=  .079
          175.HZ  A( 4)=  .128RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=   21.0DEG.
          450.HZ  A( 4)=  .259RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=  172.4DEG.
          675.HZ  A( 4)=  .165RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)= -170.8DEG.
  4   F/A= .0554   ETAC= 29.1   TT5F= 1860.   PT5/PT2= 85.9   M2= .590   PSI= 10.70   PCI= 10.90
    AT 4  RMS12=  .129,  RMS23=  .578,  RMS34=  .118        AT 8  RMS12=  .126,  RMS23=  .331,  RMS34=  .095
          175.HZ  A( 4)=  .158RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=   23.9DEG.
          450.HZ  A( 4)=  .516RMSPSI,  A( 8)=  .239RMSPSI,  PHASE( 4 8)=  168.9DEG.
          650.HZ  A( 4)=  .112RMSPSI,  A( 8)=  .138RMSPSI,  PHASE( 4 8)= -172.2DEG.
  5   F/A= .0503   ETAC= 28.2   TT5F= 1785.   PT5/PT2= 85.4   M2= .620   PSI= 10.30   PCI= 10.50
    AT 4  RMS12=  .068,  RMS23=  .626,  RMS34=  .111        AT 8  RMS12=  .064,  RMS23=  .345,  RMS34=  .121
          175.HZ  A( 4)=  .173RMSPSI,  A( 8)=  .129RMSPSI,  PHASE( 4 8)=   22.7DEG.
          450.HZ  A( 4)=  .560RMSPSI,  A( 8)=  .268RMSPSI,  PHASE( 4 8)=  170.8DEG.
          650.HZ  A( 4)=  .072RMSPSI,  A( 8)=  .090RMSPSI,  PHASE( 4 8)= -161.9DEG.
  6   F/A= .0444   ETAC= 26.5   TT5F= 1676.   PT5/PT2= 84.6   M2= .650   PSI=  9.67   PCI= 10.00
    AT 4  RMS12=  .103,  RMS23=  .376,  RMS34=  .100        AT 8  RMS12=  .093,  RMS23=  .224,  RMS34=  .098
          150.HZ  A( 4)=  .114RMSPSI,  A( 8)=  .082RMSPSI,  PHASE( 4 8)=   27.2DEG.
          450.HZ  A( 4)=  .312RMSPSI,  A( 8)=  .147RMSPSI,  PHASE( 4 8)=  160.3DEG.
          675.HZ  A( 4)=  .054RMSPSI,  A( 8)=  .067RMSPSI,  PHASE( 4 8)= -166.7DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   40% NOZ.     UNIF.INJ.
 1    F/A=0.0000    ETAC= 0.0     TT5F=  952.    PT5/PT2= 81.7     M2= .768     PSI= 10.70    PCI= 11.90
   AT 4  RMS12=  .028,  RMS23=  .134,  RMS34=  .060                  AT 8  RMS12=  .078,  RMS23=  .281,  RMS34=  .076
 2    F/A= .0648    ETAC= 58.5    TT5F= 2865.    PT5/PT2= 92.2     M2= .349     PSI= 24.20    PCI= 24.20
   AT 4  RMS12=  .192,  RMS23= 4.180,  RMS34=  .196                  AT 8  RMS12=  .209,  RMS23= 4.050,  RMS34=  .126
        125.HZ  A( 4)= 4.070RMSPSI,  A( 8)= 3.990RMSPSI,  PHASE( 4 8)=    9.9DEG.
        250.HZ  A( 4)=  .762RMSPSI,  A( 8)=  .505RMSPSI,  PHASE( 4 8)=   26.1DEG.
        625.HZ  A( 4)=  .293RMSPSI,  A( 8)=  .259RMSPSI,  PHASE( 4 8)=  176.9DEG.
 3    F/A= .0597    ETAC= 54.7    TT5F= 2683.    PT5/PT2= 91.1     M2= .363     PSI= 23.50    PCI= 23.40
   AT 4  RMS12=  .233,  RMS23= 3.060,  RMS34=  .159                  AT 8  RMS12=  .244,  RMS23= 2.950,  RMS34=  .128
        125.HZ  A( 4)= 2.920RMSPSI,  A( 8)= 2.830RMSPSI,  PHASE( 4 8)=   10.1DEG.
        250.HZ  A( 4)=  .403RMSPSI,  A( 8)=  .277RMSPSI,  PHASE( 4 8)=   31.4DEG.
        575.HZ  A( 4)=  .254RMSPSI,  A( 8)=  .213RMSPSI,  PHASE( 4 8)= -169.9DEG.
        700.HZ  A( 4)=  .226RMSPSI,  A( 8)=  .310RMSPSI,  PHASE( 4 8)=  176.5DEG.
 4    F/A= .0547    ETAC= 57.3    TT5F= 2690.    PT5/PT2= 91.4     M2= .370     PSI= 23.30    PCI=  0.00
   AT 4  RMS12=  .865,  RMS23=  .671,  RMS34= 1.070                  AT 8  RMS12=  .776,  RMS23=  .656,  RMS34=  .315
         50.HZ  A( 4)=  .997RMSPSI,  A( 8)=  .901RMSPSI,  PHASE( 4 8)=    5.8DEG.
        700.HZ  A( 4)=  .072RMSPSI,  A( 8)=  .102RMSPSI,  PHASE( 4 8)= -158.1DEG.
       1750.HZ  A( 4)=  .441RMSPSI,  A( 8)=  .170RMSPSI,  PHASE( 4 8)=   30.4DEG.
       1850.HZ  A( 4)=  .647RMSPSI,  A( 8)=  .074RMSPSI,  PHASE( 4 8)=   36.4DEG.
 5    F/A= .0498    ETAC= 57.8    TT5F= 2601.    PT5/PT2= 91.6     M2= .381     PSI= 22.60    PCI= 22.60
   AT 4  RMS12= 1.230,  RMS23= 1.090,  RMS34= 1.390                  AT 8  RMS12= 1.140,  RMS23=  .989,  RMS34=  .594
         50.HZ  A( 4)= 1.400RMSPSI,  A( 8)= 1.300RMSPSI,  PHASE( 4 8)=    5.3DEG.
       1700.HZ  A( 4)=  .477RMSPSI,  A( 8)=  .222RMSPSI,  PHASE( 4 8)=   22.0DEG.
       1825.HZ  A( 4)=  .732RMSPSI,  A( 8)=  .213RMSPSI,  PHASE( 4 8)=    2.0DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   60% NOZ.      UNIF.INJ.
   1    F/A=0.0000     ETAC=  0.0     TT5F=   574.     PT5/PT2= 58.3    M2= .826    PSI= 10.80    PCI=   7.27
     AT 4  RMS12=  .116,  RMS23=  .137,  RMS34=  .063              AT 8  RMS12=  .146,  RMS23=  .271,  RMS34=  .096
   2    F/A=0.0000     ETAC=  0.0     TT5F=   986.     PT5/PT2= 56.9    M2= .851    PSI= 14.38    PCI=   9.62
     AT 4  RMS12=  .086,  RMS23=  .196,  RMS34=  .119              AT 8  RMS12=  .120,  RMS23=  .371,  RMS34=  .143
   3    F/A=0.0000     ETAC=  0.0     TT5F=   975.     PT5/PT2= 56.6    M2= .853    PSI= 14.35    PCI=   9.60
   4    F/A= .0647     ETAC= 33.9     TT5F=  2091.     PT5/PT2= 81.5    M2= .662    PSI= 18.96    PCI=  18.92
     AT 4  RMS12=  .185,  RMS23=  .334,  RMS34=  .060              AT 8  RMS12=  .169,  RMS23=  .253,  RMS34=  .064
           200.HZ  A( 4)=   .154RMSPSI,  A( 8)=  .123RMSPSI,  PHASE( 4 8)=    23.2DEG.
           500.HZ  A( 4)=   .175RMSPSI,  A( 8)=  .101RMSPSI,  PHASE( 4 8)= -172.4DEG.
           750.HZ  A( 4)=   .101RMSPSI,  A( 8)=  .069RMSPSI,  PHASE( 4 8)= -164.0DEG.
          1725.HZ  A( 4)=   .030RMSPSI,  A( 8)=  .021RMSPSI,  PHASE( 4 8)=  100.3DEG.
          1925.HZ  A( 4)=   .023RMSPSI,  A( 8)=  .038RMSPSI,  PHASE( 4 8)= -127.8DEG.
   5    F/A= .0602     ETAC= 32.1     TT5F=  2004.     PT5/PT2= 80.8    M2= .688    PSI= 18.24    PCI=  18.23
     AT 4  RMS12=  .175,  RMS23=  .296,  RMS34=  .093              AT 8  RMS12=  .152,  RMS23=  .210,  RMS34=  .074
           225.HZ  A( 4)=   .145RMSPSI,  A( 8)=  .105RMSPSI,  PHASE( 4 8)=    27.8DEG.
           500.HZ  A( 4)=   .153RMSPSI,  A( 8)=  .073RMSPSI,  PHASE( 4 8)= -171.0DEG.
          1725.HZ  A( 4)=   .070RMSPSI,  A( 8)=  .047RMSPSI,  PHASE( 4 8)=  114.4DEG.
   6    F/A= .0549     ETAC= 25.6     TT5F=  1757.     PT5/PT2= 78.7    M2= .768    PSI= 16.18    PCI=  16.14
     AT 4  RMS12=  .247,  RMS23=  .558,  RMS34=  .097              AT 8  RMS12=  .230,  RMS23=  .351,  RMS34=  .106
           225.HZ  A( 4)=   .129RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=    33.7DEG.
           525.HZ  A( 4)=   .491RMSPSI,  A( 8)=  .235RMSPSI,  PHASE( 4 8)= -163.3DEG.
   7    F/A= .0499     ETAC= 26.4     TT5F=  1734.     PT5/PT2= 78.1    M2= .777    PSI= 15.97    PCI=  15.89
     AT 4  RMS12=  .225,  RMS23=  .942,  RMS34=  .071              AT 8  RMS12=  .195,  RMS23=  .629,  RMS34=  .086
           200.HZ  A( 4)=   .188RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=    30.6DEG.
           525.HZ  A( 4)=   .801RMSPSI,  A( 8)=  .508RMSPSI,  PHASE( 4 8)= -168.4DEG.
          1025.HZ  A( 4)=   .223RMSPSI,  A( 8)=  .183RMSPSI,  PHASE( 4 8)=    38.3DEG.
   8    F/A= .0463     ETAC= 56.1     TT5F=  2477.     PT5/PT2= 82.4    M2= .598    PSI= 21.24    PCI=  20.78
     AT 4  RMS12=  .158,  RMS23=  .374,  RMS34= 1.530              AT 8  RMS12=  .149,  RMS23=  .322,  RMS34=  .800
           200.HZ  A( 4)=   .255RMSPSI,  A( 8)=  .209RMSPSI,  PHASE( 4 8)=    27.0DEG.
          1725.HZ  A( 4)=  1.090RMSPSI,  A( 8)=  .443RMSPSI,  PHASE( 4 8)=    61.8DEG.
          2000.HZ  A( 4)=   .298RMSPSI,  A( 8)=  .363RMSPSI,  PHASE( 4 8)= -111.7DEG.
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BIN.CHAMB.   4.75 INLET   NO F.HOLD.   L/D=1.5      UNIF.INJ.
  1   F/A=0.0000    ETAC=  0.0    TT5F=  986.    PT5/PT2= 68.7    M2= .863    PSI= 11.74    PCI=  6.64
   AT 4  RMS12=  .042,  RMS23=  .047,  RMS34=  .049              AT 8  RMS12=  .079,  RMS23=  .180,  RMS34=  .083
  2   F/A= .0655    ETAC= 17.3    TT5F= 1550.    PT5/PT2= 83.8    M2= .661    PSI= 15.84    PCI= 15.80
   AT 4  RMS12=  .115,  RMS23=  .137,  RMS34=  .307              AT 8  RMS12=  .131,  RMS23=  .146,  RMS34=  .284
         1750.HZ  A( 4)=  .270RMSPSI,  A( 8)=  .247RMSPSI,  PHASE( 4 8)=   21.5DEG.
  3   F/A= .0621    ETAC= 17.5    TT5F= 1557.    PT5/PT2= 83.9    M2= .671    PSI= 15.51    PCI= 15.50
   AT 4  RMS12=  .166,  RMS23=  .185,  RMS34=  .243              AT 8  RMS12=  .171,  RMS23=  .167,  RMS34=  .273
           50.HZ  A( 4)=  .163RMSPSI,  A( 8)=  .170RMSPSI,  PHASE( 4 8)=    4.1DEG.
          375.HZ  A( 4)=  .087RMSPSI,  A( 8)=  .056RMSPSI,  PHASE( 4 8)=   12.5DEG.
         1750.HZ  A( 4)=  .246RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)=   21.7DEG.
  4   F/A= .0545    ETAC= 19.1    TT5F= 1559.    PT5/PT2= 83.8    M2= .675    PSI= 15.40    PCI= 15.44
   AT 4  RMS12=  .149,  RMS23=  .156,  RMS34=  .398              AT 8  RMS12=  .169,  RMS23=  .144,  RMS34=  .380
         1725.HZ  A( 4)=  .375RMSPSI,  A( 8)=  .360RMSPSI,  PHASE( 4 8)=   21.5DEG.
  5   F/A= .0474    ETAC= 21.9    TT5F= 1585.    PT5/PT2= 83.6    M2= .669    PSI= 15.60    PCI= 15.71
   AT 4  RMS12=  .131,  RMS23=  .152,  RMS34=  .546              AT 8  RMS12=  .134,  RMS23=  .153,  RMS34=  .495
         1700.HZ  A( 4)=  .486RMSPSI,  A( 8)=  .440RMSPSI,  PHASE( 4 8)=   14.3DEG.
  6   F/A= .0410    ETAC= 28.3    TT5F= 1674.    PT5/PT2= 83.6    M2= .637    PSI= 16.32    PCI= 16.45
   AT 4  RMS12=  .091,  RMS23=  .194,  RMS34= 1.100              AT 8  RMS12=  .092,  RMS23=  .186,  RMS34= 1.030
         1675.HZ  A( 4)=  .860RMSPSI,  A( 8)=  .856RMSPSI,  PHASE( 4 8)=    7.8DEG.
         3325.HZ  A( 4)=  .133RMSPSI,  A( 8)=  .049RMSPSI,  PHASE( 4 8)=  -45.2DEG.
         5000.HZ  A( 4)=  .153RMSPSI,  A( 8)=  .071RMSPSI,  PHASE( 4 8)= -165.3DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   BASELINE    TUBE INJ.
  1   F/A=0.0000    ETAC= 0.0    TT5F=  557.   PT5/PT2= 69.3   M2= .840   PSI=  8.77   PCI=  8.33
  2   F/A=0.0000    ETAC= 0.0    TT5F=  975.   PT5/PT2= 68.0   M2= .860   PSI= 11.90   PCI= 11.10
   AT 4  RMS12=  .064,  RMS23=  .185,  RMS34=  .105          AT 8  RMS12=  .085,  RMS23=  .357,  RMS34=  .238
       750.HZ  A( 4)=  .057RMSPSI,  A( 8)=  .177RMSPSI,  PHASE( 4 8)=  150.9DEG.
  3   F/A= .0511    ETAC= 71.2   TT5F= 2992.   PT5/PT2= 89.3   M2= .440   PSI= 24.20   PCI= 23.50
   AT 4  RMS12= 1.090,  RMS23= 7.120,  RMS34= 1.290          AT 8  RMS12=  .841,  RMS23= 5.620,  RMS34=  .789
       125.HZ  A( 4)= 6.210RMSPSI,  A( 8)= 5.050RMSPSI,  PHASE( 4 8)=  -13.2DEG.
       250.HZ  A( 4)= 1.940RMSPSI,  A( 8)= 1.320RMSPSI,  PHASE( 4 8)=   16.2DEG.
  4   F/A= .0447    ETAC= 75.7   TT5F= 2935.   PT5/PT2= 88.1   M2= .440   PSI= 24.00   PCI= 23.00
   AT 4  RMS12=  .197,  RMS23= 2.040,  RMS34= 1.810          AT 8  RMS12=  .185,  RMS23= 1.890,  RMS34=  .625
       125.HZ  A( 4)= 1.810RMSPSI,  A( 8)= 1.640RMSPSI,  PHASE( 4 8)=   -7.6DEG.
      1725.HZ  A( 4)= 1.150RMSPSI,  A( 8)=  .082RMSPSI,  PHASE( 4 8)=  -52.5DEG.
      2375.HZ  A( 4)=  .087RMSPSI,  A( 8)=  .204RMSPSI,  PHASE( 4 8)= -167.2DEG.
  5   F/A= .0399    ETAC= 77.1   TT5F= 2804.   PT5/PT2= 87.5   M2= .460   PSI= 23.40   PCI= 22.50
   AT 4  RMS12=  .148,  RMS23=  .979,  RMS34=  .888          AT 8  RMS12=  .136,  RMS23=  .827,  RMS34=  .376
       150.HZ  A( 4)=  .658RMSPSI,  A( 8)=  .555RMSPSI,  PHASE( 4 8)=   -5.2DEG.
      1750.HZ  A( 4)=  .424RMSPSI,  A( 8)=  .032RMSPSI,  PHASE( 4 8)=  -62.7DEG.
      2250.HZ  A( 4)=  .025RMSPSI,  A( 8)=  .078RMSPSI,  PHASE( 4 8)=  175.3DEG.
   AT 5  RMS12=  .334,  RMS23=  .507,  RMS34= 2.540          AT 6  RMS12=  .180,  RMS23=  .583,  RMS34= 3.180
       125.HZ  A( 5)=  .305RMSPSI,  A( 6)=  .316RMSPSI,  PHASE( 5 6)=  -16.2DEG.
       200.HZ  A( 5)=  .294RMSPSI,  A( 6)=  .399RMSPSI,  PHASE( 5 6)=   -9.7DEG.
      1750.HZ  A( 5)= 2.350RMSPSI,  A( 6)= 2.920RMSPSI,  PHASE( 5 6)=  172.3DEG.
      3500.HZ  A( 5)=  .350RMSPSI,  A( 6)=  .547RMSPSI,  PHASE( 5 6)=   -3.0DEG.
  6   F/A= .0344    ETAC= 77.3   TT5F= 2600.   PT5/PT2= 87.0   M2= .484   PSI= 22.10   PCI= 21.40
   AT 5  RMS12=  .407,  RMS23=  .327,  RMS34= 2.140          AT 6  RMS12=  .123,  RMS23=  .299,  RMS34= 2.840
      1775.HZ  A( 5)= 2.050RMSPSI,  A( 6)= 2.700RMSPSI,  PHASE( 5 6)=  173.0DEG.
      3550.HZ  A( 5)=  .280RMSPSI,  A( 6)=  .529RMSPSI,  PHASE( 5 6)=    8.1DEG.
  7   F/A= .0350    ETAC= 76.2   TT5F= 2603.   PT5/PT2= 86.6   M2= .480   PSI= 22.20   PCI= 21.30
   AT 5  RMS12=  .361,  RMS23=  .367,  RMS34= 2.030          AT 6  RMS12=  .100,  RMS23=  .437,  RMS34= 2.720
       200.HZ  A( 5)=  .235RMSPSI,  A( 6)=  .312RMSPSI,  PHASE( 5 6)=  -14.4DEG.
      1775.HZ  A( 5)= 1.840RMSPSI,  A( 6)= 2.450RMSPSI,  PHASE( 5 6)=  164.2DEG.
      3525.HZ  A( 5)=  .242RMSPSI,  A( 6)=  .453RMSPSI,  PHASE( 5 6)=  -18.1DEG.
  8   F/A= .0309    ETAC= 76.3   TT5F= 2437.   PT5/PT2= 86.8   M2= .505   PSI= 21.00   PCI= 20.40
   AT 5  RMS12=  .483,  RMS23=  .365,  RMS34= 1.860          AT 6  RMS12=  .097,  RMS23=  .300,  RMS34= 2.350
       200.HZ  A( 5)=  .163RMSPSI,  A( 6)=  .210RMSPSI,  PHASE( 5 6)=   -9.3DEG.
      1775.HZ  A( 5)= 1.670RMSPSI,  A( 6)= 2.100RMSPSI,  PHASE( 5 6)=  170.1DEG.
      3575.HZ  A( 5)=  .231RMSPSI,  A( 6)=  .379RMSPSI,  PHASE( 5 6)=   -8.0DEG.
   AT 4  RMS12=  .095,  RMS23=  .377,  RMS34= 1.210          AT 8  RMS12=  .076,  RMS23=  .392,  RMS34=  .313
       225.HZ  A( 4)=  .199RMSPSI,  A( 8)=  .192RMSPSI,  PHASE( 4 8)=   14.0DEG.
      1775.HZ  A( 4)=  .856RMSPSI,  A( 8)=  .158RMSPSI,  PHASE( 4 8)=   57.4DEG.
  9   F/A= .0240    ETAC= 31.1   TT5F= 1929.   PT5/PT2= 85.8   M2= .609   PSI= 17.50   PCI= 17.50
   AT 5  RMS12=  .088,  RMS23=  .306,  RMS34=  .132          AT 6  RMS12=  .100,  RMS23=  .384,  RMS34=  .143
       200.HZ  A( 5)=  .204RMSPSI,  A( 6)=  .261RMSPSI,  PHASE( 5 6)=   -2.4DEG.
       475.HZ  A( 5)=  .121RMSPSI,  A( 6)=  .148RMSPSI,  PHASE( 5 6)=    -.3DEG.
   AT 4  RMS12=  .091,  RMS23=  .483,  RMS34=  .175          AT 8  RMS12=  .085,  RMS23=  .382,  RMS34=  .148
       200.HZ  A( 4)=  .307RMSPSI,  A( 8)=  .232RMSPSI,  PHASE( 4 8)=   18.9DEG.
       475.HZ  A( 4)=  .212RMSPSI,  A( 8)=  .102RMSPSI,  PHASE( 4 8)=  156.6DEG.
       725.HZ  A( 4)=  .172RMSPSI,  A( 8)=  .152RMSPSI,  PHASE( 4 8)= -155.0DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   TT0=750R      TUBE INJ.
    1    F/A=0.0000    ETAC=  0.0    TT5F=  746.    PT5/PT2= 68.7     M2= .851    PSI= 10.30    PCI=  9.81
    2    F/A= .0349    ETAC= 69.3    TT5F= 2250.    PT5/PT2= 86.3     M2= .450    PSI= 20.60    PCI= 19.90
      AT 4  RMS12=  .274,  RMS23= 2.370,  RMS34= 1.460          AT 8  RMS12=  .275,  RMS23= 2.110,  RMS34=  .555
            125.HZ  A( 4)= 2.030RMSPSI,  A( 8)= 1.820RMSPSI,  PHASE( 4 8)=   7.3DEG.
           1600.HZ  A( 4)=  .659RMSPSI,  A( 8)=  .200RMSPSI,  PHASE( 4 8)=  14.3DEG.
           1725.HZ  A( 4)=  .684RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=  64.9DEG.
    3    F/A= .0304    ETAC= 65.4    TT5F= 2007.    PT5/PT2= 87.4     M2= .480    PSI= 19.10    PCI= 18.40
      AT 4  RMS12=  .170,  RMS23= 2.790,  RMS34= 1.010          AT 8  RMS12=  .134,  RMS23= 2.330,  RMS34=  .605
            175.HZ  A( 4)= 2.590RMSPSI,  A( 8)= 2.230RMSPSI,  PHASE( 4 8)=  14.2DEG.
            350.HZ  A( 4)=  .628RMSPSI,  A( 8)=  .266RMSPSI,  PHASE( 4 8)=  -7.7DEG.
           1650.HZ  A( 4)=  .466RMSPSI,  A( 8)=  .202RMSPSI,  PHASE( 4 8)= -26.4DEG.
           1825.HZ  A( 4)=  .549RMSPSI,  A( 8)=  .243RMSPSI,  PHASE( 4 8)=  49.7DEG.
    4    F/A= .0249    ETAC= 60.2    TT5F= 1722.    PT5/PT2= 86.7     M2= .540    PSI= 17.10    PCI= 17.00
      AT 4  RMS12=  .093,  RMS23= 1.050,  RMS34=  .296          AT 8  RMS12=  .077,  RMS23= 1.090,  RMS34=  .230
            150.HZ  A( 4)=  .209RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=  15.7DEG.
            625.HZ  A( 4)=  .971RMSPSI,  A( 8)= 1.030RMSPSI,  PHASE( 4 8)=-165.6DEG.
           1225.HZ  A( 4)=  .238RMSPSI,  A( 8)=  .179RMSPSI,  PHASE( 4 8)=  25.3DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   TT0=1250R    TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F= 1253.   PT5/PT2= 68.5   M2= .850   PSI= 13.60   PCI= 12.80
  2   F/A= .0654   ETAC= 71.9   TT5F= 3458.   PT5/PT2= 89.0   M2= .450   PSI= 26.40   PCI= 25.90
   AT 4  RMS12= 1.660, RMS23= 5.930, RMS34= 3.160          AT 8  RMS12=  .608, RMS23= 4.600, RMS34=  .957
          125.HZ  A( 4)= 4.630RMSPSI,  A( 8)= 3.470RMSPSI,  PHASE( 4 8)=   17.3DEG.
          250.HZ  A( 4)= 1.250RMSPSI,  A( 8)=  .918RMSPSI,  PHASE( 4 8)=  -24.1DEG.
   AT 0  RMS12= 0.000, RMS23= 0.000, RMS34= 0.000          AT 8  RMS12=  .218, RMS23= 2.550, RMS34= 1.310
  3   F/A= .0589   ETAC= 73.0   TT5F= 3396.   PT5/PT2= 88.3   M2= .460   PSI= 26.20   PCI= 25.50
   AT 5  RMS12=  .559, RMS23= 2.360, RMS34= 1.620          AT 6  RMS12=  .283, RMS23= 2.690, RMS34= 2.230
          125.HZ  A( 5)= 1.990RMSPSI,  A( 6)= 2.[illegible]0RMSPSI,  PHASE( 5 6)=   -3.0DEG.
         1825.HZ  A( 5)= 1.170RMSPSI,  A( 6)= 1.550RMSPSI,  PHASE( 5 6)=  172.0DEG.
  4   F/A= .0542   ETAC= 74.2   TT5F= 3333.   PT5/PT2= 87.3   M2= .460   PSI= 25.90   PCI= 25.10
   AT 5  RMS12=  .667, RMS23=  .684, RMS34= 2.790          AT 6  RMS12=  .225, RMS23=  .667, RMS34= 2.870
          225.HZ  A( 5)=  .403RMSPSI,  A( 6)=  .406RMSPSI,  PHASE( 5 6)=  -18.4DEG.
         1850.HZ  A( 5)= 2.410RMSPSI,  A( 6)= 2.450RMSPSI,  PHASE( 5 6)=  164.0DEG.
  5   F/A= .0490   ETAC= 75.7   TT5F= 3228.   PT5/PT2= 87.3   M2= .470   PSI= 25.40   PCI= 24.10
   AT 5  RMS12= 1.300, RMS23=  .547, RMS34= 2.860          AT 6  RMS12=  .097, RMS23=  .477, RMS34= 3.040
          175.HZ  A( 5)=  .212RMSPSI,  A( 6)=  .272RMSPSI,  PHASE( 5 6)=  -26.1DEG.
         1875.HZ  A( 5)= 2.600RMSPSI,  A( 6)= 2.770RMSPSI,  PHASE( 5 6)=  161.7DEG.
  6   F/A= .0449   ETAC= 76.5   TT5F= 3144.   PT5/PT2= 87.2   M2= .490   PSI= 24.60   PCI= 23.90
   AT 5  RMS12= 1.220, RMS23=  .530, RMS34= 2.790          AT 6  RMS12=  .165, RMS23=  .408, RMS34= 3.140
         1900.HZ  A( 5)= 2.600RMSPSI,  A( 6)= 2.780RMSPSI,  PHASE( 5 6)=  158.1DEG.
         3800.HZ  A( 5)=  .444RMSPSI,  A( 6)=  .403RMSPSI,  PHASE( 5 6)=  -37.0DEG.
   AT 4  RMS12=  .169, RMS23=  .417, RMS34= 1.560          AT 8  RMS12=  .094, RMS23=  .432, RMS34=  .507
          225.HZ  A( 4)=  .264RMSPSI,  A( 8)=  .253RMSPSI,  PHASE( 4 8)=    8.5DEG.
         1900.HZ  A( 4)= 1.370RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)=  100.1DEG.
  7   F/A= .0408   ETAC= 76.1   TT5F= 2991.   PT5/PT2= 86.8   M2= .500   PSI= 23.60   PCI= 23.00
   AT 4  RMS12=  .124, RMS23=  .422, RMS34=  .933          AT 8  RMS12=  .103, RMS23=  .391, RMS34=  .383
          225.HZ  A( 4)=  .201RMSPSI,  A( 8)=  .173RMSPSI,  PHASE( 4 8)=    7.1DEG.
         1900.HZ  A( 4)=  .622RMSPSI,  A( 8)=  .084RMSPSI,  PHASE( 4 8)=   98.8DEG.
  8   F/A= .0351   ETAC= 76.2   TT5F= 2797.   PT5/PT2= 86.7   M2= .540   PSI= 22.20   PCI= 22.00
   AT 4  RMS12=  .136, RMS23=  .350, RMS34= 1.220          AT 8  RMS12=  .061, RMS23=  .334, RMS34=  .478
          225.HZ  A( 4)=  .178RMSPSI,  A( 8)=  .152RMSPSI,  PHASE( 4 8)=   10.0DEG.
         1925.HZ  A( 4)=  .907RMSPSI,  A( 8)=  .199RMSPSI,  PHASE( 4 8)=  103.2DEG.
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BIN.CHAMB.    4.75 INLET    NO F.HOLD.    TT3=1250R     TUBE INJ.
   1   F/A=0.0000    ETAC= 0.0     TT5F=  612.     PT5/PT2= 72.2     M2= .757    PSI=  9.62     PCI=  9.05
    AT 4  RMS12=  .042,  RMS23=  .133,  RMS34=  .361            AT 8  RMS12=  .061,  RMS23=  .284,  RMS34=  .068
        625.HZ  A( 4)=  .030RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)= -119.3DEG.
   2   F/A=0.0000    ETAC= 0.0     TT5F=  546.     PT5/PT2= 69.3     M2= .834    PSI=  8.60     PCI=  8.07
   3   F/A=0.0000    ETAC= 0.0     TT5F= 1205.     PT5/PT2= 67.6     M2= .862    PSI= 13.30     PCI= 12.30
   4   F/A= .0639    ETAC= 72.6    TT5F= 3457.     PT5/PT2= 89.2     M2= .455    PSI= 26.10     PCI= 25.60
    AT 4  RMS12=  .576,  RMS23= 6.113,  RMS34= 1.050            AT 8  RMS12=  .450,  RMS23= 4.430,  RMS34=  .602
        125.HZ  A( 4)= 5.280RMSPSI,  A( 8)= 3.380RMSPSI,  PHASE( 4 8)=   11.9DEG.
        275.HZ  A( 4)= 1.340RMSPSI,  A( 8)=  .844RMSPSI,  PHASE( 4 8)=  -26.7DEG.
   5   F/A= .0563    ETAC= 73.2    TT5F= 3345.     PT5/PT2= 87.9     M2= .464    PSI= 25.90     PCI= 25.10
    AT 4  RMS12=  .261,  RMS23= 1.973,  RMS34= 1.700            AT 8  RMS12=  .169,  RMS23= 1.480,  RMS34= 1.120
        125.HZ  A( 4)= 1.600RMSPSI,  A( 8)= 1.170RMSPSI,  PHASE( 4 8)=    8.0DEG.
       1825.HZ  A( 4)=  .972RMSPSI,  A( 8)=  .064RMSPSI,  PHASE( 4 8)=  -95.7DEG.
       2275.HZ  A( 4)=  .368RMSPSI,  A( 8)=  .648RMSPSI,  PHASE( 4 8)= -115.4DEG.
   6   F/A= .0525    ETAC= 74.6    TT5F= 3300.     PT5/PT2= 87.7     M2= .470    PSI= 25.50     PCI= 24.60
    AT 4  RMS12=  .165,  RMS23=  .817,  RMS34= 1.440            AT 8  RMS12=  .128,  RMS23=  .691,  RMS34=  .890
        150.HZ  A( 4)=  .579RMSPSI,  A( 8)=  .459RMSPSI,  PHASE( 4 8)=    4.6DEG.
       1850.HZ  A( 4)=  .397RMSPSI,  A( 8)=  .049RMSPSI,  PHASE( 4 8)=   43.6DEG.
       2325.HZ  A( 4)=  .303RMSPSI,  A( 8)=  .640RMSPSI,  PHASE( 4 8)= -115.4DEG.
       5575.HZ  A( 4)=  .321RMSPSI,  A( 8)=  .252RMSPSI,  PHASE( 4 8)= -125.8DEG.
   7   F/A= .0503    ETAC= 75.1    TT5F= 3255.     PT5/PT2= 87.2     M2= .472    PSI= 25.30     PCI= 24.50
    AT 4  RMS12=  .282,  RMS23=  .740,  RMS34= 2.130            AT 8  RMS12=  .128,  RMS23=  .705,  RMS34=  .593
        150.HZ  A( 4)=  .524RMSPSI,  A( 8)=  .472RMSPSI,  PHASE( 4 8)=    -.1DEG.
       1875.HZ  A( 4)= 1.810RMSPSI,  A( 8)=  .080RMSPSI,  PHASE( 4 8)=   55.8DEG.
       2325.HZ  A( 4)=  .052RMSPSI,  A( 8)=  .185RMSPSI,  PHASE( 4 8)=  -96.3DEG.
       5600.HZ  A( 4)=  .273RMSPSI,  A( 8)=  .303RMSPSI,  PHASE( 4 8)= -132.2DEG.
   8   F/A= .0444    ETAC= 76.2    TT5F= 3123.     PT5/PT2= 86.9     M2= .491    PSI= 24.30     PCI= 23.70
    AT 4  RMS12=  .277,  RMS23=  .429,  RMS34= 2.400            AT 8  RMS12=  .084,  RMS23=  .441,  RMS34=  .611
        175.HZ  A( 4)=  .249RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)=    2.9DEG.
       1900.HZ  A( 4)= 2.070RMSPSI,  A( 8)=  .113RMSPSI,  PHASE( 4 8)=   59.2DEG.
       3775.HZ  A( 4)=  .098RMSPSI,  A( 8)=  .125RMSPSI,  PHASE( 4 8)= -113.9DEG.
       5675.HZ  A( 4)=  .316RMSPSI,  A( 8)=  .137RMSPSI,  PHASE( 4 8)=  141.0DEG.
   9   F/A= .0418    ETAC= 77.2    TT5F= 3059.     PT5/PT2= 87.0     M2= .500    PSI= 23.80     PCI= 23.30
    AT 4  RMS12=  .232,  RMS23=  .324,  RMS34= 2.400            AT 8  RMS12=  .123,  RMS23=  .341,  RMS34=  .376
        225.HZ  A( 4)=  .140RMSPSI,  A( 8)=  .128RMSPSI,  PHASE( 4 8)=   16.9DEG.
        525.HZ  A( 4)=  .134RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)=  -81.0DEG.
       1900.HZ  A( 4)= 2.300RMSPSI,  A( 8)=  .200RMSPSI,  PHASE( 4 8)=   55.3DEG.
  10   F/A= .0359    ETAC= 77.5    TT5F= 2859.     PT5/PT2= 86.7     M2= .528    PSI= 22.60     PCI= 22.30
    AT 4  RMS12=  .160,  RMS23=  .313,  RMS34= 1.870            AT 8  RMS12=  .116,  RMS23=  .340,  RMS34=  .423
        150.HZ  A( 4)=  .099RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=    2.4DEG.
        250.HZ  A( 4)=  .114RMSPSI,  A( 8)=  .123RMSPSI,  PHASE( 4 8)=   15.2DEG.
       1925.HZ  A( 4)= 1.590RMSPSI,  A( 8)=  .280RMSPSI,  PHASE( 4 8)=   65.3DEG.
       3825.HZ  A( 4)=  .120RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)= -126.9DEG.
  11   F/A= .0299    ETAC= 78.8    TT5F= 2656.     PT5/PT2= 86.9     M2= .569    PSI= 21.10     PCI= 21.20
    AT 4  RMS12=  .065,  RMS23=  .247,  RMS34=  .380            AT 8  RMS12=  .058,  RMS23=  .276,  RMS34=  .259
        150.HZ  A( 4)=  .100RMSPSI,  A( 8)=  .105RMSPSI,  PHASE( 4 8)=   13.3DEG.
        225.HZ  A( 4)=  .098RMSPSI,  A( 8)=  .108RMSPSI,  PHASE( 4 8)=   16.3DEG.
        700.HZ  A( 4)=  .082RMSPSI,  A( 8)=  .034RMSPSI,  PHASE( 4 8)= -109.6DEG.
       1925.HZ  A( 4)=  .902RMSPSI,  A( 8)=  .176RMSPSI,  PHASE( 4 8)=   55.3DEG.
       3850.HZ  A( 4)=  .106RMSPSI,  A( 8)=  .110RMSPSI,  PHASE( 4 8)=  126.6DEG.
  12   F/A= .0236    ETAC= 71.7    TT5F= 2268.     PT5/PT2= 86.2     M2= .637    PSI= 18.60     PCI= 18.80
    AT 4  RMS12=  .093,  RMS23=  .285,  RMS34=  .101            AT 8  RMS12=  .089,  RMS23=  .242,  RMS34=  .078
        225.HZ  A( 4)=  .145RMSPSI,  A( 8)=  .110RMSPSI,  PHASE( 4 8)=   14.4DEG.
       1850.HZ  A( 4)=  .075RMSPSI,  A( 8)=  .337RMSPSI,  PHASE( 4 8)=  102.3DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   LOW FLOW     TUBE INJ.
    1    F/A=0.0000    ETAC=  0.0     TT5F=  998.    PT5/PT2= 69.3    M2= .850    PSI=  7.16    PCI=  6.95
    2    F/A= .0470    ETAC= 56.6     TT5F= 2757.    PT5/PT2= 88.4    M2= .460    PSI= 13.80    PCI= 13.50
      AT 4  RMS12=  .401,  RMS23= 3.530,  RMS34=  .739          AT 8  RMS12=  .271,  RMS23= 2.750,  RMS34=  .334
           125.HZ  A( 4)= 3.340RMSPSI,  A( 8)= 2.600RMSPSI,  PHASE( 4 8)=   12.0DEG.
           250.HZ  A( 4)=  .782RMSPSI,  A( 8)=  .562RMSPSI,  PHASE( 4 8)=  -28.9DEG.
    3    F/A= .0390    ETAC= 74.2     TT5F= 2699.    PT5/PT2= 87.3    M2= .470    PSI= 13.70    PCI= 13.30
      AT 4  RMS12=  .116,  RMS23=  .592,  RMS34=  .547          AT 8  RMS12=  .116,  RMS23=  .500,  RMS34=  .223
           150.HZ  A( 4)=  .474RMSPSI,  A( 8)=  .399RMSPSI,  PHASE( 4 8)=    4.5DEG.
          1725.HZ  A( 4)=  .335RMSPSI,  A( 8)=  .039RMSPSI,  PHASE( 4 8)=   67.3DEG.
    4    F/A= .0348    ETAC= 76.8     TT5F= 2604.    PT5/PT2= 87.3    M2= .480    PSI= 13.30    PCI= 12.90
      AT 4  RMS12=  .097,  RMS23=  .391,  RMS34=  .538          AT 8  RMS12=  .107,  RMS23=  .333,  RMS34=  .215
           175.HZ  A( 4)=  .262RMSPSI,  A( 8)=  .215RMSPSI,  PHASE( 4 8)=    6.2DEG.
          1725.HZ  A( 4)=  .352RMSPSI,  A( 8)=  .052RMSPSI,  PHASE( 4 8)=   58.7DEG.
    5    F/A= .0312    ETAC= 76.7     TT5F= 2455.    PT5/PT2= 87.2    M2= .500    PSI= 12.70    PCI= 12.40
      AT 4  RMS12=  .079,  RMS23=  .323,  RMS34=  .404          AT 8  RMS12=  .080,  RMS23=  .273,  RMS34=  .195
           200.HZ  A( 4)=  .237RMSPSI,  A( 8)=  .184RMSPSI,  PHASE( 4 8)=    9.4DEG.
          1750.HZ  A( 4)=  .246RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)=   65.8DEG.
    6    F/A= .0245    ETAC= 81.2     TT5F= 2242.    PT5/PT2= 87.2    M2= .540    PSI= 11.60    PCI= 11.60
      AT 4  RMS12=  .076,  RMS23=  .642,  RMS34=  .133          AT 8  RMS12=  .070,  RMS23=  .350,  RMS34=  .122
           175.HZ  A( 4)=  .151RMSPSI,  A( 8)=  .111RMSPSI,  PHASE( 4 8)=   16.0DEG.
           450.HZ  A( 4)=  .583RMSPSI,  A( 8)=  .285RMSPSI,  PHASE( 4 8)=  156.4DEG.
           700.HZ  A( 4)=  .059RMSPSI,  A( 8)=  .076RMSPSI,  PHASE( 4 8)= -170.0DEG.
           900.HZ  A( 4)=  .089RMSPSI,  A( 8)=  .090RMSPSI,  PHASE( 4 8)=   38.2DEG.
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8IN.CHAMB.    4.75 INLET    NO F.HOLD.    40% NOZ.      TUBE INJ.
    1    F/A=0.0000     ETAC=  0.0     TT5F=  931.     PT5/PT2= 81.0     M2= .780     PSI= 10.60     PCI= 11.80
      AT 4  RMS12=  .065,  RMS23=  .135,  RMS34=  .055              AT 8  RMS12=  .063,  RMS23=  .338,  RMS34=  .071
            700.HZ  A( 4)=  .051RMSPSI,  A( 8)=  .142RMSPSI,  PHASE( 4 8)=  155.3DEG.
    2    F/A= .0513     ETAC= 69.4     TT5F= 2949.     PT5/PT2= 93.7     M2= .357     PSI= 23.80     PCI= 23.50
      AT 4  RMS12= 1.400,  RMS23= 7.930,  RMS34= 1.220              AT 8  RMS12= 1.420,  RMS23= 7.040,  RMS34=  .633
            125.HZ  A( 4)= 6.510RMSPSI,  A( 8)= 6.030RMSPSI,  PHASE( 4 8)=   12.8DEG.
            225.HZ  A( 4)= 2.500RMSPSI,  A( 8)= 1.830RMSPSI,  PHASE( 4 8)=    -.9DEG.
            350.HZ  A( 4)= 1.310RMSPSI,  A( 8)= 1.010RMSPSI,  PHASE( 4 8)=  -28.0DEG.
    3    F/A= .0447     ETAC= 74.1     TT5F= 2899.     PT5/PT2= 93.5     M2= .368     PSI= 23.40     PCI= 23.00
      AT 4  RMS12=  .337,  RMS23= 5.400,  RMS34= 1.600              AT 8  RMS12=  .380,  RMS23= 5.050,  RMS34=  .544
            125.HZ  A( 4)= 4.930RMSPSI,  A( 8)= 4.680RMSPSI,  PHASE( 4 8)=    9.9DEG.
            275.HZ  A( 4)= 1.420RMSPSI,  A( 8)= 1.110RMSPSI,  PHASE( 4 8)=  -12.1DEG.
            400.HZ  A( 4)=  .596RMSPSI,  A( 8)=  .601RMSPSI,  PHASE( 4 8)=  -30.9DEG.
           1925.HZ  A( 4)=  .630RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=   43.3DEG.
           2050.HZ  A( 4)=  .662RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=  108.5DEG.
    4    F/A= .0410     ETAC= 71.9     TT5F= 2727.     PT5/PT2= 91.6     M2= .375     PSI= 23.00     PCI= 22.50
      AT 4  RMS12=  .183,  RMS23= 1.150,  RMS34= 1.010              AT 8  RMS12=  .193,  RMS23= 1.100,  RMS34=  .581
            125.HZ  A( 4)= 1.100RMSPSI,  A( 8)= 1.030RMSPSI,  PHASE( 4 8)=    7.0DEG.
           1775.HZ  A( 4)=  .505RMSPSI,  A( 8)=  .054RMSPSI,  PHASE( 4 8)=   46.0DEG.
           2300.HZ  A( 4)=  .159RMSPSI,  A( 8)=  .357RMSPSI,  PHASE( 4 8)= -109.9DEG.
    5    F/A= .0346     ETAC= 71.0     TT5F= 2484.     PT5/PT2= 91.0     M2= .397     PSI= 21.70     PCI= 21.30
      AT 4  RMS12=  .079,  RMS23=  .511,  RMS34=  .622              AT 8  RMS12=  .077,  RMS23=  .500,  RMS34=  .291
            150.HZ  A( 4)=  .420RMSPSI,  A( 8)=  .394RMSPSI,  PHASE( 4 8)=    7.4DEG.
           1775.HZ  A( 4)=  .293RMSPSI,  A( 8)=  .063RMSPSI,  PHASE( 4 8)=   59.8DEG.
           1975.HZ  A( 4)=  .134RMSPSI,  A( 8)=  .020RMSPSI,  PHASE( 4 8)=  168.2DEG.
           3525.HZ  A( 4)=  .259RMSPSI,  A( 8)=  .032RMSPSI,  PHASE( 4 8)=   79.4DEG.
    6    F/A= .0310     ETAC= 71.7     TT5F= 2354.     PT5/PT2= 90.9     M2= .409     PSI= 20.90     PCI= 20.60
      AT 4  RMS12=  .093,  RMS23=  .423,  RMS34=  .507              AT 8  RMS12=  .090,  RMS23=  .422,  RMS34=  .296
            200.HZ  A( 4)=  .280RMSPSI,  A( 8)=  .276RMSPSI,  PHASE( 4 8)=   14.3DEG.
            600.HZ  A( 4)=  .114RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)= -151.5DEG.
           1775.HZ  A( 4)=  .115RMSPSI,  A( 8)=  .020RMSPSI,  PHASE( 4 8)=   26.0DEG.
           3550.HZ  A( 4)=  .241RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=   66.3DEG.
           3775.HZ  A( 4)=  .062RMSPSI,  A( 8)=  .150RMSPSI,  PHASE( 4 8)=   61.0DEG.
    7    F/A= .0254     ETAC= 70.8     TT5F= 2116.     PT5/PT2= 90.9     M2= .441     PSI= 19.30     PCI= 19.20
      AT 4  RMS12=  .095,  RMS23=  .797,  RMS34=  .519              AT 8  RMS12=  .078,  RMS23=  .840,  RMS34=  .253
            200.HZ  A( 4)=  .125RMSPSI,  A( 8)=  .121RMSPSI,  PHASE( 4 8)=   16.0DEG.
            600.HZ  A( 4)=  .731RMSPSI,  A( 8)=  .783RMSPSI,  PHASE( 4 8)= -169.8DEG.
           1200.HZ  A( 4)=  .155RMSPSI,  A( 8)=  .042RMSPSI,  PHASE( 4 8)=   38.8DEG.
           1825.HZ  A( 4)=  .351RMSPSI,  A( 8)=  .149RMSPSI,  PHASE( 4 8)=   22.9DEG.
           3600.HZ  A( 4)=  .084RMSPSI,  A( 8)=  .054RMSPSI,  PHASE( 4 8)= -163.9DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   60% NOZ.    TUBE INJ.
  1   F/A=0.0000   ETAC= 0.0    TT5F= 988.    PT5/PT2= 56.9    M2= .860   PSI= 14.30   PCI= 9.59
   AT 4  RMS12=  .155,  RMS23=  .176,  RMS34=  .149          AT 8  RMS12=  .139,  RMS23=  .304,  RMS34=  .170
  2   F/A= .0502   ETAC= 69.1   TT5F= 2925.   PT5/PT2= 84.0    M2= .535   PSI= 23.90   PCI= 22.80
   AT 4  RMS12=  .573,  RMS23= 3.750,  RMS34= 1.540          AT 8  RMS12=  .400,  RMS23= 2.650,  RMS34=  .726
         125.HZ  A( 4)= 3.220RMSPSI,  A( 8)= 2.290RMSPSI,  PHASE( 4 8)=  10.6DEG.
        1625.HZ  A( 4)=  .727RMSPSI,  A( 8)=  .091RMSPSI,  PHASE( 4 8)= 141.8DEG.
        2075.HZ  A( 4)=  .085RMSPSI,  A( 8)=  .236RMSPSI,  PHASE( 4 8)=   -.2DEG.
  3   F/A= .0434   ETAC= 76.9   TT5F= 2924.   PT5/PT2= 83.3    M2= .532   PSI= 24.00   PCI= 22.50
   AT 4  RMS12=  .099,  RMS23= 1.550,  RMS34= 1.520          AT 8  RMS12=  .068,  RMS23= 1.290,  RMS34=  .412
         200.HZ  A( 4)= 1.330RMSPSI,  A( 8)= 1.110RMSPSI,  PHASE( 4 8)=  15.3DEG.
         375.HZ  A( 4)=  .341RMSPSI,  A( 8)=  .255RMSPSI,  PHASE( 4 8)= -53.3DEG.
        1500.HZ  A( 4)=  .400RMSPSI,  A( 8)=  .061RMSPSI,  PHASE( 4 8)=  36.9DEG.
        1675.HZ  A( 4)=  .926RMSPSI,  A( 8)=  .132RMSPSI,  PHASE( 4 8)=  51.1DEG.
        1875.HZ  A( 4)=  .736RMSPSI,  A( 8)=  .130RMSPSI,  PHASE( 4 8)= 174.7DEG.
  4   F/A= .0398   ETAC= 76.7   TT5F= 2796.   PT5/PT2= 82.6    M2= .549   PSI= 23.20   PCI= 21.80
   AT 4  RMS12=  .172,  RMS23= 2.540,  RMS34= 3.010          AT 8  RMS12=  .079,  RMS23= 2.190,  RMS34=  .710
         200.HZ  A( 4)= 2.380RMSPSI,  A( 8)= 2.070RMSPSI,  PHASE( 4 8)=  17.9DEG.
         400.HZ  A( 4)=  .615RMSPSI,  A( 8)=  .433RMSPSI,  PHASE( 4 8)= -54.2DEG.
        1725.HZ  A( 4)= 1.990RMSPSI,  A( 8)=  .274RMSPSI,  PHASE( 4 8)=  43.6DEG.
        1900.HZ  A( 4)= 1.270RMSPSI,  A( 8)=  .265RMSPSI,  PHASE( 4 8)= 141.2DEG.
  5   F/A= .0362   ETAC= 75.3   TT5F= 2627.   PT5/PT2= 82.2    M2= .574   PSI= 22.20   PCI= 20.90
   AT 4  RMS12=  .184,  RMS23= 1.770,  RMS34= 2.240          AT 8  RMS12=  .124,  RMS23= 1.530,  RMS34=  .540
         200.HZ  A( 4)= 1.650RMSPSI,  A( 8)= 1.440RMSPSI,  PHASE( 4 8)=  16.9DEG.
         400.HZ  A( 4)=  .364RMSPSI,  A( 8)=  .262RMSPSI,  PHASE( 4 8)= -52.6DEG.
        1725.HZ  A( 4)= 1.760RMSPSI,  A( 8)=  .206RMSPSI,  PHASE( 4 8)=  52.3DEG.
        1925.HZ  A( 4)=  .813RMSPSI,  A( 8)=  .213RMSPSI,  PHASE( 4 8)= 155.2DEG.
  6   F/A= .0789   ETAC= 69.4   TT5F= 2237.   PT5/PT2= 81.3    M2= .658   PSI= 19.10   PCI= 18.90
   AT 4  RMS12=  .094,  RMS23=  .271,  RMS34=  .673          AT 8  RMS12=  .093,  RMS23=  .239,  RMS34=  .212
         200.HZ  A( 4)=  .145RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=  17.1DEG.
        1800.HZ  A( 4)=  .621RMSPSI,  A( 8)=  .174RMSPSI,  PHASE( 4 8)=  90.2DEG.
  7   F/A= .0261   ETAC= 57.1   TT5F= 2095.   PT5/PT2= 80.3    M2= .694   PSI= 18.10   PCI= 17.90
   AT 4  RMS12=  .097,  RMS23=  .275,  RMS34=  .348          AT 8  RMS12=  .093,  RMS23=  .240,  RMS34=  .165
         225.HZ  A( 4)=  .121RMSPSI,  A( 8)=  .098RMSPSI,  PHASE( 4 8)=  29.7DEG.
        1775.HZ  A( 4)=  .303RMSPSI,  A( 8)=  .126RMSPSI,  PHASE( 4 8)= 112.4DEG.
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8IN.CHAMB.   4.75 INLET   NO F.HOLD.   L/D=1.5      TUBE INJ.
    1    F/A=0.0000    ETAC=  0.0     TT5F=  998.     PT5/PT2= 68.9     M2= .857    PSI= 11.90    PCI=  6.71
      AT 4  RMS12=  .044,  RMS23=  .113,  RMS34=  .051           AT 8  RMS12=  .086,  RMS23=  .182,  RMS34=  .068
    2    F/A= .0450    ETAC= 47.0     TT5F= 2210.     PT5/PT2= 84.0     M2= .509    PSI= 20.80    PCI= 20.30
      AT 4  RMS12=  .338,  RMS23= 1.310,  RMS34= 2.400           AT 8  RMS12=  .274,  RMS23= 1.170,  RMS34= 1.790
             125.HZ  A( 4)=  .965RMSPSI,  A( 8)=  .888RMSPSI,  PHASE( 4 8)=   9.5DEG.
            1650.HZ  A( 4)= 1.820RMSPSI,  A( 8)= 1.430RMSPSI,  PHASE( 4 8)=   2.1DEG.
    3    F/A= .0407    ETAC= 51.7     TT5F= 2230.     PT5/PT2= 84.6     M2= .513    PSI= 20.70    PCI= 20.40
      AT 4  RMS12=  .184,  RMS23= 1.150,  RMS34= 2.100           AT 8  RMS12=  .134,  RMS23= 1.020,  RMS34= 1.540
             200.HZ  A( 4)=  .918RMSPSI,  A( 8)=  .804RMSPSI,  PHASE( 4 8)=  10.6DEG.
            1675.HZ  A( 4)= 1.830RMSPSI,  A( 8)= 1.380RMSPSI,  PHASE( 4 8)=  -2.7DEG.
    4    F/A= .0347    ETAC= 53.4     TT5F= 2121.     PT5/PT2= 84.7     M2= .542    PSI= 19.70    PCI= 19.50
      AT 4  RMS12=  .254,  RMS23=  .754,  RMS34= 2.050           AT 8  RMS12=  .107,  RMS23=  .671,  RMS34= 1.440
             200.HZ  A( 4)=  .564RMSPSI,  A( 8)=  .505RMSPSI,  PHASE( 4 8)=  10.0DEG.
            1725.HZ  A( 4)= 1.800RMSPSI,  A( 8)= 1.280RMSPSI,  PHASE( 4 8)=   -.2DEG.
    5    F/A= .0310    ETAC= 40.1     TT5F= 1767.     PT5/PT2= 84.0     M2= .627    PSI= 15.80    PCI= 16.70
      AT 4  RMS12=  .168,  RMS23=  .289,  RMS34=  .602           AT 8  RMS12=  .170,  RMS23=  .260,  RMS34=  .508
            1750.HZ  A( 4)=  .554RMSPSI,  A( 8)=  .467RMSPSI,  PHASE( 4 8)=  12.5DEG.
    6    F/A= .0254    ETAC= 45.2     TT5F= 1719.     PT5/PT2= 83.7     M2= .644    PSI= 16.20    PCI= 16.10
      AT 4  RMS12=  .088,  RMS23=  .198,  RMS34=  .526           AT 8  RMS12=  .099,  RMS23=  .193,  RMS34=  .456
            1775.HZ  A( 4)=  .463RMSPSI,  A( 8)=  .402RMSPSI,  PHASE( 4 8)=  19.6DEG.
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BIN.CHAMB.    4.75 INLET   .25Y F.H.    BASELINE      UNIF.INJ.
    1    F/A=0.0000     ETAC=  0.0     TT5F=  999.     PT5/PT2= 51.9     M2= .494     PSI= 21.51     PCI= 12.70
    2    F/A= .0655     ETAC= 89.9     TT5F= 3911.     PT5/PT2= 83.5     M2= .334     PSI= 32.07     PCI= 27.87
      AT 4  RMS12=  .254,  RMS23=  .409,  RMS34= 1.140          AT 8  RMS12=  .214,  RMS23=  .467,  RMS34=  .528
            225.HZ  A( 4)=  .191RMSPSI,  A( 8)=  .205RMSPSI,  PHASE( 4 8)=   10.6DEG.
           2075.HZ  A( 4)=  .402RMSPSI,  A( 8)=  .047RMSPSI,  PHASE( 4 8)=   87.2DEG.
           4600.HZ  A( 4)=  .478RMSPSI,  A( 8)=  .171RMSPSI,  PHASE( 4 8)=  -18.8DEG.
           4925.HZ  A( 4)=  .443RMSPSI,  A( 8)=  .090RMSPSI,  PHASE( 4 8)= -167.2DEG.
    3    F/A= .0580     ETAC= 84.6     TT5F= 3584.     PT5/PT2= 82.6     M2= .354     PSI= 30.39     PCI= 26.60
      AT 4  RMS12=  .256,  RMS23=  .244,  RMS34=  .383          AT 8  RMS12=  .229,  RMS23=  .231,  RMS34=  .224
            275.HZ  A( 4)=  .114RMSPSI,  A( 8)=  .107RMSPSI,  PHASE( 4 8)=   28.6DEG.
           3875.HZ  A( 4)=  .236RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)=  -79.8DEG.
    4    F/A= .0538     ETAC= 85.0     TT5F= 3477.     PT5/PT2= 82.2     M2= .361     PSI= 29.89     PCI= 26.12
      AT 4  RMS12=  .086,  RMS23=  .274,  RMS34=  .577          AT 8  RMS12=  .081,  RMS23=  .256,  RMS34=  .228
            200.HZ  A( 4)=  .145RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=   12.9DEG.
           3475.HZ  A( 4)=  .345RMSPSI,  A( 8)=  .008RMSPSI,  PHASE( 4 8)= -103.3DEG.
           3775.HZ  A( 4)=  .355RMSPSI,  A( 8)=  .158RMSPSI,  PHASE( 4 8)=  -90.1DEG.
    5    F/A= .0500     ETAC= 86.1     TT5F= 3392.     PT5/PT2= 81.7     M2= .366     PSI= 29.27     PCI= 25.48
      AT 4  RMS12=  .103,  RMS23=  .255,  RMS34=  .554          AT 8  RMS12=  .081,  RMS23=  .237,  RMS34=  .278
            225.HZ  A( 4)=  .107RMSPSI,  A( 8)=  .103RMSPSI,  PHASE( 4 8)=   10.5DEG.
           3425.HZ  A( 4)=  .152RMSPSI,  A( 8)=  .009RMSPSI,  PHASE( 4 8)=  -82.8DEG.
           3725.HZ  A( 4)=  .437RMSPSI,  A( 8)=  .226RMSPSI,  PHASE( 4 8)=  -81.1DEG.
    6    F/A= .0449     ETAC= 80.1     TT5F= 3053.     PT5/PT2= 79.7     M2= .381     PSI= 28.21     PCI= 23.80
      AT 4  RMS12=  .123,  RMS23=  .648,  RMS34= 1.010          AT 8  RMS12=  .089,  RMS23=  .527,  RMS34=  .610
            225.HZ  A( 4)=  .506RMSPSI,  A( 8)=  .414RMSPSI,  PHASE( 4 8)=   12.5DEG.
           3425.HZ  A( 4)=  .511RMSPSI,  A( 8)=  .042RMSPSI,  PHASE( 4 8)= -163.8DEG.
           3700.HZ  A( 4)=  .411RMSPSI,  A( 8)=  .369RMSPSI,  PHASE( 4 8)=  -74.4DEG.
    7    F/A= .0450     ETAC= 95.2     TT5F= 3438.     PT5/PT2= 81.0     M2= .358     PSI= 29.92     PCI= 25.54
      AT 4  RMS12=  .223,  RMS23=  .302,  RMS34= 2.450          AT 8  RMS12=  .137,  RMS23=  .345,  RMS34=  .649
           2050.HZ  A( 4)= 1.940RMSPSI,  A( 8)=  .424RMSPSI,  PHASE( 4 8)=   75.0DEG.
           4075.HZ  A( 4)=  .725RMSPSI,  A( 8)=  .134RMSPSI,  PHASE( 4 8)=   90.0DEG.
           6125.HZ  A( 4)=  .293RMSPSI,  A( 8)=  .165RMSPSI,  PHASE( 4 8)=  -81.2DEG.
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8IN.CHAMB.    4.75 INLET    .25Y F.H.     TT0=750R      UNIF.INJ.
   1    F/A=0.0000    ETAC= 0.0     TT5F=  766.     PT5/PT2= 52.1     M2= .487    PSI= 18.90    PCI= 11.00
   2    F/A= .0631    ETAC= 75.8    TT5F= 3274.     PT5/PT2= 83.3     M2= .316    PSI= 29.40    PCI= 25.90
     AT 4  RMS12=  .189,  RMS23= 4.740,  RMS34=  .682           AT 8  RMS12=  .154,  RMS23= 4.420,  RMS34=  .549
           200.HZ  A( 4)= 4.000RMSPSI,  A( 8)= 3.750RMSPSI,  PHASE( 4 8)=   17.0DEG.
           375.HZ  A( 4)= 1.320RMSPSI,  A( 8)=  .660RMSPSI,  PHASE( 4 8)=   50.8DEG.
           575.HZ  A( 4)= 1.070RMSPSI,  A( 8)=  .553RMSPSI,  PHASE( 4 8)= -172.9DEG.
   3    F/A= .0589    ETAC= 75.0    TT5F= 3162.     PT5/PT2= 82.9     M2= .325    PSI= 28.60    PCI= 25.10
     AT 4  RMS12=  .238,  RMS23= 4.290,  RMS34=  .625           AT 8  RMS12=  .191,  RMS23= 3.940,  RMS34=  .508
           175.HZ  A( 4)= 3.680RMSPSI,  A( 8)= 3.550RMSPSI,  PHASE( 4 8)=   18.5DEG.
           375.HZ  A( 4)= 1.160RMSPSI,  A( 8)=  .524RMSPSI,  PHASE( 4 8)=   49.5DEG.
           550.HZ  A( 4)=  .860RMSPSI,  A( 8)=  .450RMSPSI,  PHASE( 4 8)= -172.8DEG.
           750.HZ  A( 4)=  .494RMSPSI,  A( 8)=  .340RMSPSI,  PHASE( 4 8)= -175.6DEG.
   4    F/A= .0554    ETAC= 73.4    TT5F= 3027.     PT5/PT2= 82.4     M2= .333    PSI= 27.80    PCI= 24.30
     AT 4  RMS12=  .235,  RMS23= 4.320,  RMS34=  .537           AT 8  RMS12=  .200,  RMS23= 3.[illegible]30,  RMS34=  .379
           175.HZ  A( 4)= 3.910RMSPSI,  A( 8)= 3.700RMSPSI,  PHASE( 4 8)=   18.9DEG.
           375.HZ  A( 4)= 1.020RMSPSI,  A( 8)=  .462RMSPSI,  PHASE( 4 8)=   43.3DEG.
           550.HZ  A( 4)=  .771RMSPSI,  A( 8)=  .447RMSPSI,  PHASE( 4 8)= -174.5DEG.
           725.HZ  A( 4)=  .484RMSPSI,  A( 8)=  .355RMSPSI,  PHASE( 4 8)= -173.6DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    TT0=1250R    UNIF.INJ.
   1   F/A= .0652    ETAC= 93.6     TT5F= 4123.    PT5/PT2= 81.7    M2= .357    PSI= 33.76    PCI= 28.81
     AT 4  RMS12=  .151,  RMS23=  .313,  RMS34=  .969          AT 8  RMS12=  .136,  RMS23=  .317,  RMS34=  .780
            150.HZ   A( 4)=  .149RMSPSI,   A( 8)=  .125RMSPSI,   PHASE( 4 8)=    -4.00EG.
            275.HZ   A( 4)=  .111RMSPSI,   A( 8)=  .105RMSPSI,   PHASE( 4 8)=   -15.60EG.
            675.HZ   A( 4)=  .110RMSPSI,   A( 8)=  .103RMSPSI,   PHASE( 4 8)=  -107.00EG.
           2250.HZ   A( 4)=  .143RMSPSI,   A( 8)=  .007RMSPSI,   PHASE( 4 8)=    82.00EG.
           4900.HZ   A( 4)=  .778RMSPSI,   A( 8)=  .604RMSPSI,   PHASE( 4 8)=   -23.60EG.
           9775.HZ   A( 4)=  .195RMSPSI,   A( 8)=  .491RMSPSI,   PHASE( 4 8)=   139.80EG.
   2   F/A= .0596    ETAC= 93.9     TT5F= 4022.    PT5/PT2= 81.5    M2= .367    PSI= 32.73    PCI= 27.76
     AT 4  RMS12=  .144,  RMS23=  .310,  RMS34=  .984          AT 8  RMS12=  .125,  RMS23=  .312,  RMS34=  .993
            300.HZ   A( 4)=  .174RMSPSI,   A( 8)=  .167RMSPSI,   PHASE( 4 8)=     -.50EG.
           2175.HZ   A( 4)=  .227RMSPSI,   A( 8)=  .014RMSPSI,   PHASE( 4 8)=    28.40EG.
           2500.HZ   A( 4)=  .178RMSPSI,   A( 8)=  .281RMSPSI,   PHASE( 4 8)=   -81.70EG.
           5100.HZ   A( 4)=  .664RMSPSI,   A( 8)=  .555RMSPSI,   PHASE( 4 8)=  -161.60EG.
   3   F/A= .0553    ETAC= 89.7     TT5F= 3786.    PT5/PT2= 81.0    M2= .380    PSI= 31.36    PCI= 27.15
     AT 4  RMS12=  .116,  RMS23=  .314,  RMS34=  .181          AT 8  RMS12=  .090,  RMS23=  .198,  RMS34=  .208
            250.HZ   A( 4)=  .094RMSPSI,   A( 8)=  .089RMSPSI,   PHASE( 4 8)=    27.80EG.
           3950.HZ   A( 4)=  .094RMSPSI,   A( 8)=  .169RMSPSI,   PHASE( 4 8)=   -76.30EG.
   4   F/A= .0489    ETAC= 91.0     TT5F= 3627.    PT5/PT2= 80.2    M2= .390    PSI= 30.69    PCI= 26.39
     AT 4  RMS12=  .101,  RMS23=  .330,  RMS34=  .234          AT 8  RMS12=  .106,  RMS23=  .194,  RMS34=  .204
           2050.HZ   A( 4)=  .117RMSPSI,   A( 8)=  .027RMSPSI,   PHASE( 4 8)=    92.10EG.
           3850.HZ   A( 4)=  .142RMSPSI,   A( 8)=  .151RMSPSI,   PHASE( 4 8)=   -69.60EG.
   5   F/A= .0444    ETAC= 91.8     TT5F= 3485.    PT5/PT2= 79.6    M2= .399    PSI= 30.07    PCI= 25.68
     AT 4  RMS12=  .191,  RMS23=  .385,  RMS34=  .621          AT 8  RMS12=  .104,  RMS23=  .176,  RMS34=  .335
           2025.HZ   A( 4)=  .345RMSPSI,   A( 8)=  .060RMSPSI,   PHASE( 4 8)=    87.10EG.
           3775.HZ   A( 4)=  .246RMSPSI,   A( 8)=  .251RMSPSI,   PHASE( 4 8)=   -76.00EG.
           5800.HZ   A( 4)=  .239RMSPSI,   A( 8)=  .118RMSPSI,   PHASE( 4 8)=   164.70EG.
   6   F/A= .0406    ETAC= 91.0     TT5F= 3315.    PT5/PT2= 78.3    M2= .406    PSI= 29.45    PCI= 24.80
     AT 4  RMS12=  .079,  RMS23=  .393,  RMS34=  .959          AT 8  RMS12=  .073,  RMS23=  .303,  RMS34=  .416
           1975.HZ   A( 4)=  .518RMSPSI,   A( 8)=  .102RMSPSI,   PHASE( 4 8)=   126.60EG.
           3475.HZ   A( 4)=  .377RMSPSI,   A( 8)=  .059RMSPSI,   PHASE( 4 8)=   135.30EG.
           3700.HZ   A( 4)=  .149RMSPSI,   A( 8)=  .266RMSPSI,   PHASE( 4 8)=    21.50EG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    LOW FLOW     UNIF.INJ.
    1    F/A=0.0000    ETAC=  0.0    TT5F= 1108.    PT5/PT2= 52.0    M2= .492    PSI= 16.80    PCI= 14.30
    2    F/A= .0655    ETAC= 81.9    TT5F= 3637.    PT5/PT2= 82.9    M2= .349    PSI= 13.00    PCI=  7.65
     AT 4  RMS12=  .106,  RMS23=  .175,  RMS34=  .126          AT 8  RMS12=  .094,  RMS23=  .157,  RMS34=  .110
           200.HZ  A( 4)=  .087RMSPSI,  A( 8)=  .080RMSPSI,  PHASE( 4 8)=   16.70EG.
          3900.HZ  A( 4)=  .099RMSPSI,  A( 8)=  .087RMSPSI,  PHASE( 4 8)=  -65.70EG.
    3    F/A= .0615    ETAC= 83.0    TT5F= 3596.    PT5/PT2= 82.7    M2= .351    PSI= 18.50    PCI= 16.30
     AT 4  RMS12=  .074,  RMS23=  .468,  RMS34=  .089          AT 8  RMS12=  .043,  RMS23=  .413,  RMS34=  .067
           225.HZ  A( 4)=  .419RMSPSI,  A( 8)=  .372RMSPSI,  PHASE( 4 8)=   16.90EG.
          3850.HZ  A( 4)=  .041RMSPSI,  A( 8)=  .038RMSPSI,  PHASE( 4 8)=  -76.90EG.
    4    F/A= .0561    ETAC= 84.5    TT5F= 3517.    PT5/PT2= 82.5    M2= .358    PSI= 18.30    PCI= 16.00
     AT 4  RMS12=  .046,  RMS23=  .226,  RMS34=  .174          AT 8  RMS12=  .033,  RMS23=  .195,  RMS34=  .108
           225.HZ  A( 4)=  .176RMSPSI,  A( 8)=  .162RMSPSI,  PHASE( 4 8)=   10.50EG.
          3775.HZ  A( 4)=  .147RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=  -56.30EG.
    5    F/A= .0509    ETAC= 84.3    TT5F= 3362.    PT5/PT2= 81.7    M2= .358    PSI= 18.00    PCI= 15.70
     AT 4  RMS12=  .051,  RMS23=  .876,  RMS34=  .085          AT 8  RMS12=  .050,  RMS23=  .701,  RMS34=  .048
           200.HZ  A( 4)=  .801RMSPSI,  A( 8)=  .644RMSPSI,  PHASE( 4 8)=   20.60EG.
          3650.HZ  A( 4)=  .040RMSPSI,  A( 8)=  .022RMSPSI,  PHASE( 4 8)=  -58.20EG.
    6    F/A= .0448    ETAC= 80.0    TT5F= 3035.    PT5/PT2= 79.9    M2= .381    PSI= 17.50    PCI= 15.30
     AT 4  RMS12=  .163,  RMS23= 2.120,  RMS34=  .145          AT 8  RMS12=  .123,  RMS23= 1.560,  RMS34=  .076
           200.HZ  A( 4)= 1.950RMSPSI,  A( 8)= 1.460RMSPSI,  PHASE( 4 8)=   18.50EG.
           400.HZ  A( 4)=  .475RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=   18.30EG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    40% NO2.     UNIF.INJ.
   1    F/A=0.0000    ETAC=  0.0    TT5F=  931.    PT5/PT2= 32.7    M2= .492    PSI= 17.30    PCI= 12.60
   2    F/A= .0642    ETAC= 85.3    TT5F= 3737.    PT5/PT2= 88.3    M2= .285    PSI= 30.20    PCI= 28.10
      AT 4  RMS12=  .084,  RMS23= 1.710,  RMS34=  .152          AT 8  RMS12=  .084,  RMS23= 1.600,  RMS34=  .108
           200.HZ  A( 4)= 1.510RMSPSI,  A( 8)= 1.330RMSPSI,  PHASE( 4 8)=   19.5DEG.
           400.HZ  A( 4)=  .357RMSPSI,  A( 8)=  .161RMSPSI,  PHASE( 4 8)=   94.0DEG.
           600.HZ  A( 4)=  .361RMSPSI,  A( 8)=  .311RMSPSI,  PHASE( 4 8)=  167.4DEG.
   3    F/A= .0595    ETAC= 85.9    TT5F= 3658.    PT5/PT2= 88.2    M2= .291    PSI= 29.70    PCI= 27.50
      AT 4  RMS12=  .103,  RMS23= 1.613,  RMS34=  .132          AT 8  RMS12=  .087,  RMS23= 1.500,  RMS34=  .103
           200.HZ  A( 4)= 1.440RMSPSI,  A( 8)= 1.320RMSPSI,  PHASE( 4 8)=   21.1DEG.
           400.HZ  A( 4)=  .285RMSPSI,  A( 8)=  .129RMSPSI,  PHASE( 4 8)=  101.6DEG.
           625.HZ  A( 4)=  .369RMSPSI,  A( 8)=  .317RMSPSI,  PHASE( 4 8)=  176.9DEG.
   4    F/A= .0544    ETAC= 85.3    TT5F=******    PT5/PT2= 87.5    M2= .299    PSI= 29.00    PCI= 26.80
      AT 4  RMS12=  .096,  RMS23= 1.690,  RMS34=  .124          AT 8  RMS12=  .107,  RMS23= 1.520,  RMS34=  .100
           200.HZ  A( 4)= 1.540RMSPSI,  A( 8)= 1.390RMSPSI,  PHASE( 4 8)=   21.2DEG.
           400.HZ  A( 4)=  .298RMSPSI,  A( 8)=  .133RMSPSI,  PHASE( 4 8)=  120.4DEG.
           625.HZ  A( 4)=  .412RMSPSI,  A( 8)=  .365RMSPSI,  PHASE( 4 8)= -173.4DEG.
   5    F/A= .0490    ETAC= 86.3    TT5F= 3364.    PT5/PT2= 87.3    M2= .307    PSI= 28.10    PCI= 26.00
      AT 4  RMS12=  .091,  RMS23= 1.460,  RMS34=  .165          AT 8  RMS12=  .069,  RMS23= 1.220,  RMS34=  .080
           200.HZ  A( 4)= 1.360RMSPSI,  A( 8)= 1.130RMSPSI,  PHASE( 4 8)=   21.4DEG.
           400.HZ  A( 4)=  .242RMSPSI,  A( 8)=  .113RMSPSI,  PHASE( 4 8)=  115.2DEG.
           600.HZ  A( 4)=  .273RMSPSI,  A( 8)=  .264RMSPSI,  PHASE( 4 8)= -161.5DEG.
   6    F/A= .0456    ETAC= 91.2    TT5F= 3371.    PT5/PT2= 86.7    M2= .306    PSI= 28.30    PCI= 25.60
      AT 4  RMS12=  .250,  RMS23= 1.610,  RMS34= 3.570          AT 8  RMS12=  .238,  RMS23= 1.390,  RMS34=  .865
           125.HZ  A( 4)= 1.430RMSPSI,  A( 8)= 1.680RMSPSI,  PHASE( 4 8)=    9.7DEG.
          2025.HZ  A( 4)= 2.770RMSPSI,  A( 8)=  .360RMSPSI,  PHASE( 4 8)=  119.6DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.     50% NOZ.     UNIF.INJ.
   1   F/A=0.0000   ETAC= 0.0    TT5F=  977.    PT5/PT2= 42.9    M2= .497    PSI= 25.87    PCI= 11.75
     AT 4  RMS12=  .054,  RMS23=  .215,  RMS34=  .209          AT 8  RMS12=  .093,  RMS23=  .307,  RMS34=  .158
   2   F/A= .0656   ETAC= 85.9   TT5F= 3787.    PT5/PT2= 77.8    M2= .392    PSI= 32.93    PCI= 27.09
     AT 4  RMS12=  .167,  RMS23=  .345,  RMS34=  .567          AT 8  RMS12=  .106,  RMS23=  .281,  RMS34=  .423
            225.HZ  A( 4)=  .182RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)=   20.6DEG.
            300.HZ  A( 4)=  .138RMSPSI,  A( 8)=  .149RMSPSI,  PHASE( 4 8)=    -.5DEG.
           3625.HZ  A( 4)=  .174RMSPSI,  A( 8)=  .019RMSPSI,  PHASE( 4 8)=  -48.3DEG.
           3900.HZ  A( 4)=  .331RMSPSI,  A( 8)=  .319RMSPSI,  PHASE( 4 8)=  -34.2DEG.
   3   F/A= .0602   ETAC= 87.1   TT5F= 3712.    PT5/PT2= 77.3    M2= .396    PSI= 32.53    PCI= 26.65
     AT 4  RMS12=  .170,  RMS23=  .310,  RMS34=  .429          AT 8  RMS12=  .114,  RMS23=  .223,  RMS34=  .345
            250.HZ  A( 4)=  .131RMSPSI,  A( 8)=  .125RMSPSI,  PHASE( 4 8)=    5.1DEG.
           3550.HZ  A( 4)=  .101RMSPSI,  A( 8)=  .010RMSPSI,  PHASE( 4 8)=   31.0DEG.
           3850.HZ  A( 4)=  .283RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)=  -30.1DEG.
   4   F/A= .0545   ETAC= 85.7   TT5F= 3522.    PT5/PT2= 76.0    M2= .407    PSI= 31.72    PCI= 25.71
     AT 4  RMS12=  .137,  RMS23=  .361,  RMS34=  .904          AT 8  RMS12=  .135,  RMS23=  .270,  RMS34=  .358
            275.HZ  A( 4)=  .161RMSPSI,  A( 8)=  .154RMSPSI,  PHASE( 4 8)=   15.9DEG.
           2000.HZ  A( 4)=  .136RMSPSI,  A( 8)=  .029RMSPSI,  PHASE( 4 8)=  100.9DEG.
           3500.HZ  A( 4)=  .545RMSPSI,  A( 8)=  .042RMSPSI,  PHASE( 4 8)=  153.0DEG.
           3775.HZ  A( 4)=  .221RMSPSI,  A( 8)=  .251RMSPSI,  PHASE( 4 8)=  -40.6DEG.
   5   F/A= .0505   ETAC= 84.4   TT5F= 3363.    PT5/PT2= 75.0    M2= .416    PSI= 31.12    PCI= 25.02
     AT 4  RMS12=  .116,  RMS23=  .401,  RMS34= 1.150          AT 8  RMS12=  .102,  RMS23=  .289,  RMS34=  .259
            225.HZ  A( 4)=  .197RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=   24.5DEG.
           1925.HZ  A( 4)=  .128RMSPSI,  A( 8)=  .023RMSPSI,  PHASE( 4 8)=  108.9DEG.
           3400.HZ  A( 4)=  .556RMSPSI,  A( 8)=  .016RMSPSI,  PHASE( 4 8)=  171.7DEG.
           3500.HZ  A( 4)=  .546RMSPSI,  A( 8)=  .081RMSPSI,  PHASE( 4 8)=   61.9DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.     BASELINE      TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0      TT5F=  567.     PT5/PT2= 52.0     M2= .480     PSI= 15.90     PCI=  9.13
   2    F/A=0.0000    ETAC=  0.0      TT5F= 1105.     PT5/PT2= 51.4     M2= .490     PSI= 21.60     PCI= 12.30
   3    F/A= .0657    ETAC= 73.5      TT5F= 3378.     PT5/PT2= 81.5     M2= .360     PSI= 15.90     PCI=  9.13
     AT 4  RMS12=  .129,  RMS23= 1.080,  RMS34= 1.040           AT 8  RMS12=  .092,  RMS23=  .923,  RMS34= 1.010
           225.HZ  A( 4)=  .955RMSPSI,  A( 8)=  .830RMSPSI,  PHASE( 4 8)=   18.2DEG.
          1975.HZ  A( 4)=  .259RMSPSI,  A( 8)=  .034RMSPSI,  PHASE( 4 8)= -150.0DEG.
          2250.HZ  A( 4)=  .545RMSPSI,  A( 8)=  .695RMSPSI,  PHASE( 4 8)=  -95.0DEG.
          2475.HZ  A( 4)=  .049RMSPSI,  A( 8)=  .334RMSPSI,  PHASE( 4 8)=  177.4DEG.
          4575.HZ  A( 4)=  .385RMSPSI,  A( 8)=  .163RMSPSI,  PHASE( 4 8)=   92.2DEG.
   4    F/A= .0585    ETAC= 74.1      TT5F= 3272.     PT5/PT2= 81.0     M2= .370     PSI= 29.20     PCI= 24.80
     AT 4  RMS12=  .071,  RMS23=  .595,  RMS34= 1.060           AT 8  RMS12=  .049,  RMS23=  .434,  RMS34=  .797
           225.HZ  A( 4)=  .332RMSPSI,  A( 8)=  .280RMSPSI,  PHASE( 4 8)=   19.1DEG.
          2250.HZ  A( 4)=  .437RMSPSI,  A( 8)=  .529RMSPSI,  PHASE( 4 8)=  -69.4DEG.
          3725.HZ  A( 4)=  .495RMSPSI,  A( 8)=  .220RMSPSI,  PHASE( 4 8)=  -65.8DEG.
   5    F/A= .0532    ETAC= 76.8      TT5F= 3222.     PT5/PT2= 80.6     M2= .371     PSI= 29.00     PCI= 24.60
     AT 4  RMS12=  .107,  RMS23=  .463,  RMS34= 1.030           AT 8  RMS12=  .094,  RMS23=  .393,  RMS34=  .679
           225.HZ  A( 4)=  .276RMSPSI,  A( 8)=  .247RMSPSI,  PHASE( 4 8)=   11.7DEG.
          3725.HZ  A( 4)=  .579RMSPSI,  A( 8)=  .369RMSPSI,  PHASE( 4 8)=  -73.3DEG.
   6    F/A= .0483    ETAC= 78.9      TT5F= 3139.     PT5/PT2= 80.2     M2= .377     PSI= 28.60     PCI= 24.30
     AT 4  RMS12=  .132,  RMS23=  .527,  RMS34= 1.030           AT 8  RMS12=  .114,  RMS23=  .441,  RMS34=  .640
           225.HZ  A( 4)=  .345RMSPSI,  A( 8)=  .279RMSPSI,  PHASE( 4 8)=   17.8DEG.
          3425.HZ  A( 4)=  .339RMSPSI,  A( 8)=  .036RMSPSI,  PHASE( 4 8)=   75.4DEG.
          3725.HZ  A( 4)=  .550RMSPSI,  A( 8)=  .351RMSPSI,  PHASE( 4 8)=  -82.7DEG.
   7    F/A= .0439    ETAC= 81.7      TT5F= 3060.     PT5/PT2= 79.9     M2= .383     PSI= 28.70     PCI= 23.80
     AT 4  RMS12=  .106,  RMS23=  .492,  RMS34= 1.140           AT 8  RMS12=  .100,  RMS23=  .432,  RMS34=  .495
           225.HZ  A( 4)=  .298RMSPSI,  A( 8)=  .258RMSPSI,  PHASE( 4 8)=   16.5DEG.
          3425.HZ  A( 4)=  .569RMSPSI,  A( 8)=  .033RMSPSI,  PHASE( 4 8)=   41.6DEG.
          3700.HZ  A( 4)=  .546RMSPSI,  A( 8)=  .266RMSPSI,  PHASE( 4 8)=  -99.0DEG.
   8    F/A= .0419    ETAC= 80.4      TT5F= 2960.     PT5/PT2= 79.0     M2= .389     PSI= 27.40     PCI= 23.00
     AT 4  RMS12=  .130,  RMS23=  .542,  RMS34=  .967           AT 8  RMS12=  .107,  RMS23=  .448,  RMS34=  .419
           225.HZ  A( 4)=  .377RMSPSI,  A( 8)=  .316RMSPSI,  PHASE( 4 8)=   19.2DEG.
          3400.HZ  A( 4)=  .479RMSPSI,  A( 8)=  .022RMSPSI,  PHASE( 4 8)= -170.9DEG.
          3675.HZ  A( 4)=  .447RMSPSI,  A( 8)=  .257RMSPSI,  PHASE( 4 8)=  -71.8DEG.
   9    F/A= .0349    ETAC= 84.6      TT5F= 2776.     PT5/PT2= 78.1     M2= .402     PSI= 26.60     PCI= 22.10
     AT 4  RMS12=  .057,  RMS23=  .381,  RMS34= 1.120           AT 8  RMS12=  .068,  RMS23=  .344,  RMS34=  .302
           200.HZ  A( 4)=  .188RMSPSI,  A( 8)=  .162RMSPSI,  PHASE( 4 8)=    9.5DEG.
          3350.HZ  A( 4)=  .914RMSPSI,  A( 8)=  .092RMSPSI,  PHASE( 4 8)=  149.0DEG.
  10    F/A= .0301    ETAC= 86.8      TT5F= 2610.     PT5/PT2= 77.0     M2= .415     PSI= 25.90     PCI= 21.40
  11    F/A= .0242    ETAC= 88.3      TT5F= 2349.     PT5/PT2= 75.1     M2= .435     PSI= 24.70     PCI= 20.10
           200.HZ  A( 4)=  .217RMSPSI,  A( 8)=  .151RMSPSI,  PHASE( 4 8)=   16.7DEG.
          3250.HZ  A( 4)=  .875RMSPSI,  A( 8)=  .396RMSPSI,  PHASE( 4 8)=  128.1DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    TT0=750R      TUBE INJ.
  1   F/A=0.0000   ETAC=  0.0   TT5F=  777.    PT5/PT2= 52.5    M2= .490    PSI= 18.67    PCI= 11.15
  2   F/A= .0658   ETAC= 50.1   TT5F= 2797.    PT5/PT2= 82.1    M2= .345    PSI= 27.00    PCI= 23.29
   AT 4  RMS12=  .090,  RMS23=  .428,  RMS34=  .315          AT 8  RMS12=  .078,  RMS23=  .393,  RMS34=  .636
       200.HZ  A( 4)=  .252RMSPSI,   A( 8)=  .228RMSPSI,   PHASE( 4 8)=    8.8DEG.
      2125.HZ  A( 4)=  .289RMSPSI,   A( 8)=  .404RMSPSI,   PHASE( 4 8)= -127.6DEG.
      3275.HZ  A( 4)=  .457RMSPSI,   A( 8)=  .037RMSPSI,   PHASE( 4 8)=  115.5DEG.
      3575.HZ  A( 4)=  .284RMSPSI,   A( 8)=  .173RMSPSI,   PHASE( 4 8)=  -65.7DEG.
      3725.HZ  A( 4)=  .125RMSPSI,   A( 8)=  .232RMSPSI,   PHASE( 4 8)=   86.6DEG.
  3   F/A= .0594   ETAC= 52.0   TT5F= 2754.    PT5/PT2= 81.7    M2= .348    PSI= 26.71    PCI= 22.97
   AT 4  RMS12=  .103,  RMS23=  .528,  RMS34= 1.080          AT 8  RMS12=  .092,  RMS23=  .488,  RMS34=  .796
       200.HZ  A( 4)=  .355RMSPSI,   A( 8)=  .326RMSPSI,   PHASE( 4 8)=   16.3DEG.
      1200.HZ  A( 4)=  .206RMSPSI,   A( 8)=  .024RMSPSI,   PHASE( 4 8)=  -51.2DEG.
      2100.HZ  A( 4)=  .415RMSPSI,   A( 8)=  .562RMSPSI,   PHASE( 4 8)= -123.6DEG.
      3300.HZ  A( 4)=  .470RMSPSI,   A( 8)=  .036RMSPSI,   PHASE( 4 8)=  128.7DEG.
      3550.HZ  A( 4)=  .290RMSPSI,   A( 8)=  .149RMSPSI,   PHASE( 4 8)=  -67.4DEG.
      3700.HZ  A( 4)=  .128RMSPSI,   A( 8)=  .178RMSPSI,   PHASE( 4 8)=   97.1DEG.
  4   F/A= .0550   ETAC= 65.2   TT5F= 2762.    PT5/PT2= 81.8    M2= .350    PSI= 26.63    PCI= 22.91
   AT 4  RMS12=  .130,  RMS23=  .562,  RMS34= 1.130          AT 8  RMS12=  .092,  RMS23=  .569,  RMS34=  .731
       200.HZ  A( 4)=  .381RMSPSI,   A( 8)=  .398RMSPSI,   PHASE( 4 8)=   15.5DEG.
      2100.HZ  A( 4)=  .356RMSPSI,   A( 8)=  .474RMSPSI,   PHASE( 4 8)= -125.8DEG.
      3325.HZ  A( 4)=  .411RMSPSI,   A( 8)=  .029RMSPSI,   PHASE( 4 8)=  111.5DEG.
      3550.HZ  A( 4)=  .465RMSPSI,   A( 8)=  .211RMSPSI,   PHASE( 4 8)=  -59.1DEG.
      3725.HZ  A( 4)=  .119RMSPSI,   A( 8)=  .133RMSPSI,   PHASE( 4 8)=  122.0DEG.
  5   F/A= .0505   ETAC= 70.0   TT5F= 2788.    PT5/PT2= 81.8    M2= .350    PSI= 26.62    PCI= 22.89
   AT 4  RMS12=  .137,  RMS23=  .726,  RMS34= 1.240          AT 8  RMS12=  .100,  RMS23=  .666,  RMS34=  .800
       175.HZ  A( 4)=  .583RMSPSI,   A( 8)=  .528RMSPSI,   PHASE( 4 8)=   16.9DEG.
      2100.HZ  A( 4)=  .402RMSPSI,   A( 8)=  .528RMSPSI,   PHASE( 4 8)= -128.7DEG.
      3275.HZ  A( 4)=  .558RMSPSI,   A( 8)=  .034RMSPSI,   PHASE( 4 8)=  143.3DEG.
      3675.HZ  A( 4)=  .118RMSPSI,   A( 8)=  .204RMSPSI,   PHASE( 4 8)=  125.2DEG.
  6   F/A= .0440   ETAC= 74.5   TT5F= 2706.    PT5/PT2= 81.1    M2= .355    PSI= 26.23    PCI= 22.40
   AT 4  RMS12=  .146,  RMS23=  .571,  RMS34= 1.160          AT 8  RMS12=  .135,  RMS23=  .508,  RMS34=  .791
       175.HZ  A( 4)=  .346RMSPSI,   A( 8)=  .303RMSPSI,   PHASE( 4 8)=   15.6DEG.
      2075.HZ  A( 4)=  .350RMSPSI,   A( 8)=  .591RMSPSI,   PHASE( 4 8)= -127.5DEG.
      3200.HZ  A( 4)=  .596RMSPSI,   A( 8)=  .073RMSPSI,   PHASE( 4 8)=  129.9DEG.
      3500.HZ  A( 4)=  .369RMSPSI,   A( 8)=  .165RMSPSI,   PHASE( 4 8)=  -60.8DEG.
      3675.HZ  A( 4)=  .168RMSPSI,   A( 8)=  .177RMSPSI,   PHASE( 4 8)=   11.1DEG.
  7   F/A= .0415   ETAC= 77.1   TT5F= 2687.    PT5/PT2= 81.0    M2= .358    PSI= 25.78    PCI= 22.05
   AT 4  RMS12=  .127,  RMS23=  .655,  RMS34= 1.280          AT 8  RMS12=  .098,  RMS23=  .631,  RMS34=  .623
       200.HZ  A( 4)=  .396RMSPSI,   A( 8)=  .361RMSPSI,   PHASE( 4 8)=   11.1DEG.
      2075.HZ  A( 4)=  .215RMSPSI,   A( 8)=  .395RMSPSI,   PHASE( 4 8)= -132.0DEG.
      3225.HZ  A( 4)=  .931RMSPSI,   A( 8)=  .076RMSPSI,   PHASE( 4 8)=  128.0DEG.
  8   F/A= .0351   ETAC= 78.8   TT5F= 2472.    PT5/PT2= 79.7    M2= .372    PSI= 24.82    PCI= 21.05
   AT 4  RMS12=  .102,  RMS23=  .374,  RMS34= 1.390          AT 8  RMS12=  .069,  RMS23=  .342,  RMS34=  .408
       175.HZ  A( 4)=  .210RMSPSI,   A( 8)=  .197RMSPSI,   PHASE( 4 8)=   14.2DEG.
      3150.HZ  A( 4)= 1.130RMSPSI,   A( 8)=  .213RMSPSI,   PHASE( 4 8)=  114.5DEG.
      6300.HZ  A( 4)=  .405RMSPSI,   A( 8)=  .559RMSPSI,   PHASE( 4 8)=  -79.6DEG.
  9   F/A= .0305   ETAC= 80.8   TT5F= 2311.    PT5/PT2= 78.7    M2= .385    PSI= 24.03    PCI= 20.26
   AT 4  RMS12=  .103,  RMS23=  .488,  RMS34= 1.590          AT 8  RMS12=  .093,  RMS23=  .400,  RMS34=  .527
       175.HZ  A( 4)=  .383RMSPSI,   A( 8)=  .288RMSPSI,   PHASE( 4 8)=   18.0DEG.
      3100.HZ  A( 4)= 1.150RMSPSI,   A( 8)=  .223RMSPSI,   PHASE( 4 8)=  103.8DEG.
 10   F/A= .0242   ETAC= 38.9   TT5F= 1367.    PT5/PT2= 68.6    M2= .455    PSI= 19.84    PCI= 15.33
   AT 4  RMS12=  .153,  RMS23=  .135,  RMS34=  .096          AT 8  RMS12=  .119,  RMS23=  .175,  RMS34=  .122
       400.HZ  A( 4)=  .060RMSPSI,   A( 8)=  .073RMSPSI,   PHASE( 4 8)=  179.6DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    TT0=1250R    TUBE INJ.
   1   F/A=0.0000   ETAC=  0.0    TT5F= 1218.    PT5/PT2= 51.7    M2= .494    PSI= 24.19    PCI= 13.96
   2   F/A= .0661   ETAC= 77.0    TT5F= 3623.    PT5/PT2= 79.8    M2= .382    PSI= 31.30    PCI= 26.43
     AT 4  RMS12=  .102,  RMS23=  .453,  RMS34=  .916         AT 8  RMS12=  .070,  RMS23=  .327,  RMS34=  .797
         3925.HZ  A( 4)=  .590RMSPSI,  A( 8)=  .558RMSPSI,  PHASE( 4 8)=  -76.1DEG.
   3   F/A= .0595   ETAC= 79.8    TT5F= 3604.    PT5/PT2= 79.6    M2= .387    PSI= 31.13    PCI= 26.23
     AT 4  RMS12=  .099,  RMS23=  .395,  RMS34=  .913         AT 8  RMS12=  .081,  RMS23=  .308,  RMS34=  .705
         3525.HZ  A( 4)=  .279RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=   92.2DEG.
         3950.HZ  A( 4)=  .692RMSPSI,  A( 8)=  .553RMSPSI,  PHASE( 4 8)=  -78.4DEG.
   4   F/A= .0542   ETAC= 81.5    TT5F= 3524.    PT5/PT2= 79.4    M2= .392    PSI= 30.75    PCI= 25.93
     AT 4  RMS12=  .085,  RMS23=  .393,  RMS34=  .875         AT 8  RMS12=  .059,  RMS23=  .294,  RMS34=  .670
          250.HZ  A( 4)=  .143RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=    4.7DEG.
         3550.HZ  A( 4)=  .270RMSPSI,  A( 8)=  .039RMSPSI,  PHASE( 4 8)=    8.7DEG.
         3950.HZ  A( 4)=  .620RMSPSI,  A( 8)=  .504RMSPSI,  PHASE( 4 8)=  -82.9DEG.
         7900.HZ  A( 4)=  .244RMSPSI,  A( 8)=  .119RMSPSI,  PHASE( 4 8)=   86.1DEG.
   5   F/A= .0503   ETAC= 81.8    TT5F= 3429.    PT5/PT2= 78.7    M2= .397    PSI= 30.26    PCI= 25.30
     AT 4  RMS12=  .110,  RMS23=  .468,  RMS34=  .947         AT 8  RMS12=  .090,  RMS23=  .369,  RMS34=  .724
         3550.HZ  A( 4)=  .456RMSPSI,  A( 8)=  .039RMSPSI,  PHASE( 4 8)=   13.8DEG.
         3925.HZ  A( 4)=  .585RMSPSI,  A( 8)=  .533RMSPSI,  PHASE( 4 8)=  -92.7DEG.
         7850.HZ  A( 4)=  .148RMSPSI,  A( 8)=  .091RMSPSI,  PHASE( 4 8)=   49.0DEG.
   6   F/A= .0445   ETAC= 84.2    TT5F= 3314.    PT5/PT2= 78.2    M2= .407    PSI= 29.65    PCI= 24.75
     AT 4  RMS12=  .102,  RMS23=  .425,  RMS34=  .942         AT 8  RMS12=  .094,  RMS23=  .328,  RMS34=  .528
          225.HZ  A( 4)=  .194RMSPSI,  A( 8)=  .163RMSPSI,  PHASE( 4 8)=    8.3DEG.
         3600.HZ  A( 4)=  .565RMSPSI,  A( 8)=  .109RMSPSI,  PHASE( 4 8)=   69.7DEG.
         3850.HZ  A( 4)=  .306RMSPSI,  A( 8)=  .358RMSPSI,  PHASE( 4 8)=  -78.8DEG.
   7   F/A= .0413   ETAC= 85.9    TT5F= 3236.    PT5/PT2= 77.7    M2= .412    PSI= 29.10    PCI= 24.24
     AT 4  RMS12=  .096,  RMS23=  .372,  RMS34=  .712         AT 8  RMS12=  .062,  RMS23=  .332,  RMS34=  .536
          150.HZ  A( 4)=  .169RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=   12.8DEG.
         3800.HZ  A( 4)=  .180RMSPSI,  A( 8)=  .214RMSPSI,  PHASE( 4 8)=  -80.9DEG.
         4925.HZ  A( 4)=  .501RMSPSI,  A( 8)=  .283RMSPSI,  PHASE( 4 8)= -106.5DEG.
   8   F/A= .0357   ETAC= 87.6    TT5F= 3053.    PT5/PT2= 76.5    M2= .423    PSI= 28.27    PCI= 23.26
     AT 4  RMS12=  .091,  RMS23=  .332,  RMS34=  .641         AT 8  RMS12=  .135,  RMS23=  .294,  RMS34=  .479
         4925.HZ  A( 4)=  .392RMSPSI,  A( 8)=  .246RMSPSI,  PHASE( 4 8)=  -83.0DEG.
         4950.HZ  A( 4)=  .415RMSPSI,  A( 8)=  .223RMSPSI,  PHASE( 4 8)=  -99.6DEG.
         9875.HZ  A( 4)=  .366RMSPSI,  A( 8)=  .073RMSPSI,  PHASE( 4 8)=  176.3DEG.
   9   F/A= .0308   ETAC= 88.8    TT5F= 2862.    PT5/PT2= 75.2    M2= .436    PSI= 27.64    PCI= 22.55
     AT 4  RMS12=  .118,  RMS23=  .324,  RMS34=  .649         AT 8  RMS12=  .099,  RMS23=  .269,  RMS34=  .563
          225.HZ  A( 4)=  .151RMSPSI,  A( 8)=  .039RMSPSI,  PHASE( 4 8)=   16.1DEG.
         3575.HZ  A( 4)=  .104RMSPSI,  A( 8)=  .069RMSPSI,  PHASE( 4 8)=  137.4DEG.
         4975.HZ  A( 4)=  .417RMSPSI,  A( 8)=  .333RMSPSI,  PHASE( 4 8)= -173.3DEG.
         9900.HZ  A( 4)=  .238RMSPSI,  A( 8)=  .067RMSPSI,  PHASE( 4 8)=  -44.3DEG.
  10   F/A= .0237   ETAC= 91.1    TT5F= 2560.    PT5/PT2= 73.1    M2= .456    PSI= 26.40    PCI= 21.14
     AT 4  RMS12=  .091,  RMS23=  .413,  RMS34=  .725         AT 8  RMS12=  .062,  RMS23=  .221,  RMS34=  .463
          175.HZ  A( 4)=  .155RMSPSI,  A( 8)=  .084RMSPSI,  PHASE( 4 8)=    8.3DEG.
         3400.HZ  A( 4)=  .599RMSPSI,  A( 8)=  .344RMSPSI,  PHASE( 4 8)=  113.0DEG.
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AD-A111 355 COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES PART I PARAMETRIC..(U) AIR FORCE WRIGHT AERONAUTICAL LABS WRIGHT-PATTERSON AFB OH D L DAVIS JUL 81 4/4

UNCLASSIFIED AFWAL-TR-81-2047-PT-1 F/G 21/5 NL

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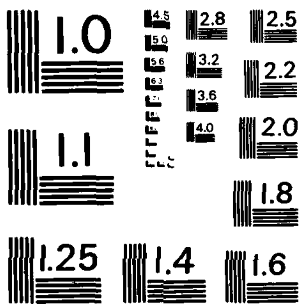
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    LOW FLOW    TUBE INJ.
   1    F/A=0.0000    ETAC=  0.0     TT5F= 1027.    PT5/PT2= 52.8    M2= .493    PSI= 12.91    PCI=  7.66
   2    F/A= .0653    ETAC= 74.1     TT5F= 3378.    PT5/PT2= 81.5    M2= .358    PSI= 17.95    PCI= 14.94
     AT 4  RMS12=  .098,  RMS23=  .559,  RMS34=  .603         AT 8  RMS12=  .091,  RMS23=  .445,  RMS34=  .825
           225.HZ  A( 4)=  .436RMSPSI,  A( 8)=  .368RMSPSI,  PHASE( 4 8)=   21.10EG.
          2225.HZ  A( 4)=  .349RMSPSI,  A( 8)=  .507RMSPSI,  PHASE( 4 8)=  -68.3DEG.
          2425.HZ  A( 4)=  .025RMSPSI,  A( 8)=  .217RMSPSI,  PHASE( 4 8)=  101.9DEG.
          4525.HZ  A( 4)=  .210RMSPSI,  A( 8)=  .153RMSPSI,  PHASE( 4 8)=  109.0DEG.
   3    F/A= .0619    ETAC= 72.9     TT5F= 3292.    PT5/PT2= 81.2    M2= .365    PSI= 17.64    PCI= 14.90
     AT 4  RMS12=  .079,  RMS23=  .492,  RMS34=  .595         AT 8  RMS12=  .046,  RMS23=  .387,  RMS34=  .665
           225.HZ  A( 4)=  .386RMSPSI,  A( 8)=  .316RMSPSI,  PHASE( 4 8)=   16.9DEG.
          2225.HZ  A( 4)=  .367RMSPSI,  A( 8)=  .517RMSPSI,  PHASE( 4 8)=  -60.4DEG.
          4450.HZ  A( 4)=  .222RMSPSI,  A( 8)=  .114RMSPSI,  PHASE( 4 8)=   52.2DEG.
   4    F/A= .0559    ETAC= 71.8     TT5F= 3138.    PT5/PT2= 80.6    M2= .377    PSI= 17.11    PCI= 14.59
     AT 4  RMS12=  .082,  RMS23=  .287,  RMS34=  .400         AT 8  RMS12=  .074,  RMS23=  .222,  RMS34=  .375
           225.HZ  A( 4)=  .170RMSPSI,  A( 8)=  .139RMSPSI,  PHASE( 4 8)=   23.7DEG.
          2175.HZ  A( 4)=  .202RMSPSI,  A( 8)=  .291RMSPSI,  PHASE( 4 8)=  -90.2DEG.
          3600.HZ  A( 4)=  .155RMSPSI,  A( 8)=  .065RMSPSI,  PHASE( 4 8)=  -32.4DEG.
          3800.HZ  A( 4)=  .051RMSPSI,  A( 8)=  .095RMSPSI,  PHASE( 4 8)=  121.8DEG.
          5750.HZ  A( 4)=  .136RMSPSI,  A( 8)=  .071RMSPSI,  PHASE( 4 8)=  176.6DEG.
   5    F/A= .0503    ETAC= 75.5     TT5F= 3101.    PT5/PT2= 80.2    M2= .379    PSI= 16.99    PCI= 14.39
     AT 4  RMS12=  .136,  RMS23=  .354,  RMS34=  .518         AT 8  RMS12=  .119,  RMS23=  .289,  RMS34=  .282
           225.HZ  A( 4)=  .256RMSPSI,  A( 8)=  .195RMSPSI,  PHASE( 4 8)=   19.9DEG.
          3350.HZ  A( 4)=  .229RMSPSI,  A( 8)=  .018RMSPSI,  PHASE( 4 8)= -156.6DEG.
          3625.HZ  A( 4)=  .296RMSPSI,  A( 8)=  .152RMSPSI,  PHASE( 4 8)=  -88.1DEG.
   6    F/A= .0452    ETAC= 77.4     TT5F= 2995.    PT5/PT2= 79.7    M2= .387    PSI= 16.64    PCI= 14.04
     AT 4  RMS12=  .112,  RMS23=  .407,  RMS34=  .429         AT 8  RMS12=  .075,  RMS23=  .316,  RMS34=  .224
           200.HZ  A( 4)=  .324RMSPSI,  A( 8)=  .249RMSPSI,  PHASE( 4 8)=   18.8DEG.
          3375.HZ  A( 4)=  .129RMSPSI,  A( 8)=  .012RMSPSI,  PHASE( 4 8)= -106.8DEG.
          3600.HZ  A( 4)=  .289RMSPSI,  A( 8)=  .131RMSPSI,  PHASE( 4 8)=  -32.2DEG.
   7    F/A= .0388    ETAC= 78.6     TT5F= 2796.    PT5/PT2= 78.5    M2= .400    PSI= 16.08    PCI= 13.54
     AT 4  RMS12=  .056,  RMS23=  .243,  RMS34=  .433         AT 8  RMS12=  .061,  RMS23=  .201,  RMS34=  .239
           200.HZ  A( 4)=  .112RMSPSI,  A( 8)=  .084RMSPSI,  PHASE( 4 8)=   21.6DEG.
           500.HZ  A( 4)=  .083RMSPSI,  A( 8)=  .080RMSPSI,  PHASE( 4 8)= -172.1DEG.
          4600.HZ  A( 4)=  .328RMSPSI,  A( 8)=  .051RMSPSI,  PHASE( 4 8)=   49.3DEG.
   8    F/A= .0351    ETAC= 80.8     TT5F= 2698.    PT5/PT2= 77.9    M2= .407    PSI= 15.81    PCI= 13.25
     AT 4  RMS12=  .044,  RMS23=  .250,  RMS34=  .398         AT 8  RMS12=  .064,  RMS23=  .204,  RMS34=  .270
           150.HZ  A( 4)=  .129RMSPSI,  A( 8)=  .098RMSPSI,  PHASE( 4 8)=   21.2DEG.
           475.HZ  A( 4)=  .097RMSPSI,  A( 8)=  .073RMSPSI,  PHASE( 4 8)=  167.3DEG.
          4575.HZ  A( 4)=  .301RMSPSI,  A( 8)=  .070RMSPSI,  PHASE( 4 8)=   59.1DEG.
   9    F/A= .0307    ETAC= 86.7     TT5F= 2626.    PT5/PT2= 77.4    M2= .413    PSI= 15.60    PCI= 12.93
     AT 4  RMS12=  .087,  RMS23=  .247,  RMS34=  .912         AT 8  RMS12=  .103,  RMS23=  .214,  RMS34=  .184
           150.HZ  A( 4)=  .117RMSPSI,  A( 8)=  .098RMSPSI,  PHASE( 4 8)=    2.2DEG.
          3275.HZ  A( 4)=  .698RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=  151.3DEG.
          6550.HZ  A( 4)=  .273RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)=  -88.4DEG.
  10    F/A= .0244    ETAC= 90.5     TT5F= 2383.    PT5/PT2= 75.5    M2= .430    PSI= 14.91    PCI= 12.16
     AT 4  RMS12=  .173,  RMS23=  .237,  RMS34=  .487         AT 8  RMS12=  .163,  RMS23=  .208,  RMS34=  .272
           175.HZ  A( 4)=  .112RMSPSI,  A( 8)=  .083RMSPSI,  PHASE( 4 8)=    6.7DEG.
          3175.HZ  A( 4)=  .357RMSPSI,  A( 8)=  .166RMSPSI,  PHASE( 4 8)=  133.0DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    40% NOZ.     TUBE INJ.
   1   F/A=0.0000    ETAC=  0.0     TT5F=  961.     PT5/PT2= 63.4     M2= .491    PSI= 17.34    PCI= 12.72
   2   F/A= .0642    ETAC= 69.7     TT5F= 3242.     PT5/PT2= 86.7     M2= .308    PSI= 28.05    PCI= 25.26
     AT 4  RMS12=  .092,  RMS23=  .734,  RMS34= 1.020            AT 8  RMS12=  .065,  RMS23=  .667,  RMS34=  .844
           225.HZ  A( 4)=  .555RMSPSI,   A( 8)=  .521RMSPSI,   PHASE( 4 8)=   21.6DEG.
          1950.HZ  A( 4)=  .473RMSPSI,   A( 8)=  .017RMSPSI,   PHASE( 4 8)=  178.0DEG.
          2275.HZ  A( 4)=  .479RMSPSI,   A( 8)=  .617RMSPSI,   PHASE( 4 8)= -108.1DEG.
          2500.HZ  A( 4)=  .068RMSPSI,   A( 8)=  .245RMSPSI,   PHASE( 4 8)=   59.2DEG.
   3   F/A= .0598    ETAC= 71.1     TT5F= 3210.     PT5/PT2= 86.6     M2= .312    PSI= 27.75    PCI= 25.05
     AT 4  RMS12=  .160,  RMS23=  .713,  RMS34=  .919            AT 8  RMS12=  .173,  RMS23=  .666,  RMS34=  .769
           225.HZ  A( 4)=  .572RMSPSI,   A( 8)=  .543RMSPSI,   PHASE( 4 8)=   20.0DEG.
          1950.HZ  A( 4)=  .257RMSPSI,   A( 8)=  .026RMSPSI,   PHASE( 4 8)= -154.1DEG.
          2275.HZ  A( 4)=  .444RMSPSI,   A( 8)=  .493RMSPSI,   PHASE( 4 8)=  -81.9DEG.
          2475.HZ  A( 4)=  .067RMSPSI,   A( 8)=  .249RMSPSI,   PHASE( 4 8)=   69.0DEG.
   4   F/A= .0547    ETAC= 73.8     TT5F= 3179.     PT5/PT2= 86.6     M2= .315    PSI= 27.50    PCI= 24.87
     AT 4  RMS12=  .146,  RMS23=  .492,  RMS34=  .797            AT 8  RMS12=  .130,  RMS23=  .409,  RMS34=  .664
           200.HZ  A( 4)=  .284RMSPSI,   A( 8)=  .213RMSPSI,   PHASE( 4 8)=   18.4DEG.
          1925.HZ  A( 4)=  .098RMSPSI,   A( 8)=  .017RMSPSI,   PHASE( 4 8)=  105.6DEG.
          2250.HZ  A( 4)=  .285RMSPSI,   A( 8)=  .453RMSPSI,   PHASE( 4 8)= -117.4DEG.
          2450.HZ  A( 4)=  .041RMSPSI,   A( 8)=  .099RMSPSI,   PHASE( 4 8)=   50.1DEG.
          3475.HZ  A( 4)=  .091RMSPSI,   A( 8)=  .016RMSPSI,   PHASE( 4 8)=   76.4DEG.
          3725.HZ  A( 4)=  .151RMSPSI,   A( 8)=  .114RMSPSI,   PHASE( 4 8)=  -77.3DEG.
          3975.HZ  A( 4)=  .045RMSPSI,   A( 8)=  .183RMSPSI,   PHASE( 4 8)=   31.3DEG.
          5950.HZ  A( 4)=  .274RMSPSI,   A( 8)=  .044RMSPSI,   PHASE( 4 8)=   51.9DEG.
   5   F/A= .0501    ETAC= 76.1     TT5F= 3125.     PT5/PT2= 86.3     M2= .319    PSI= 27.19    PCI= 24.71
     AT 4  RMS12=  .101,  RMS23=  .484,  RMS34=  .705            AT 8  RMS12=  .095,  RMS23=  .413,  RMS34=  .527
           150.HZ  A( 4)=  .293RMSPSI,   A( 8)=  .257RMSPSI,   PHASE( 4 8)=    5.7DEG.
          2250.HZ  A( 4)=  .156RMSPSI,   A( 8)=  .214RMSPSI,   PHASE( 4 8)= -100.8DEG.
          3750.HZ  A( 4)=  .212RMSPSI,   A( 8)=  .114RMSPSI,   PHASE( 4 8)= -119.6DEG.
          3925.HZ  A( 4)=  .083RMSPSI,   A( 8)=  .255RMSPSI,   PHASE( 4 8)=   39.7DEG.
   6   F/A= .0446    ETAC= 79.2     TT5F= 3034.     PT5/PT2= 86.0     M2= .326    PSI= 26.64    PCI= 24.16
     AT 4  RMS12=  .100,  RMS23=  .494,  RMS34=  .633            AT 8  RMS12=  .099,  RMS23=  .401,  RMS34=  .490
           150.HZ  A( 4)=  .274RMSPSI,   A( 8)=  .236RMSPSI,   PHASE( 4 8)=   10.4DEG.
           600.HZ  A( 4)=  .137RMSPSI,   A( 8)=  .122RMSPSI,   PHASE( 4 8)= -159.5DEG.
          3450.HZ  A( 4)=  .221RMSPSI,   A( 8)=  .017RMSPSI,   PHASE( 4 8)=  -63.7DEG.
          3700.HZ  A( 4)=  .350RMSPSI,   A( 8)=  .258RMSPSI,   PHASE( 4 8)=  -93.7DEG.
          3875.HZ  A( 4)=  .048RMSPSI,   A( 8)=  .180RMSPSI,   P ASE( 4 8)=   58.5DEG.
   7   F/A= .0411    ETAC= 79.7     TT5F= 2911.     PT5/PT2= 85.5     M2= .331    PSI= 26.05    PCI= 23.54
     AT 4  RMS12=  .175,  RMS23=  .482,  RMS34=  .607            AT 8  RMS12=  .156,  RMS23=  .422,  RMS34=  .403
           200.HZ  A( 4)=  .297RMSPSI,   A( 8)=  .241RMSPSI,   PHASE( 4 8)=   10.9DEG.
          3425.HZ  A( 4)=  .290RMSPSI,   A( 8)=  .010RMSPSI,   PHASE( 4 8)=   49.4DEG.
          3675.HZ  A( 4)=  .198RMSPSI,   A( 8)=  .193RMSPSI,   PHASE( 4 8)=  -90.0DEG.
          3875.HZ  A( 4)=  .042RMSPSI,   A( 8)=  .144RMSPSI,   PHASE( 4 8)=   70.2DEG.
   8   F/A= .0339    ETAC= 83.3     TT5F= 2699.     PT5/PT2= 84.7     M2= .345    PSI= 24.93    PCI= 22.46
     AT 4  RMS12=  .062,  RMS23=  .398,  RMS34=  .892            AT 8  RMS12=  .062,  RMS23=  .340,  RMS34=  .422
           150.HZ  A( 4)=  .226RMSPSI,   A( 8)=  .210RMSPSI,   PHASE( 4 8)=    9.6DEG.
          1250.HZ  A( 4)=  .139RMSPSI,   A( 8)=  .029RMSPSI,   PHASE( 4 8)=    5.3DEG.
          3425.HZ  A( 4)=  .174RMSPSI,   A( 8)=  .035RMSPSI,   PHASE( 4 8)=   76.3DEG.
          4675.HZ  A( 4)=  .547RMSPSI,   A( 8)=  .172RMSPSI,   PHASE( 4 8)=   35.6DEG.
   9   F/A= .0309    ETAC= 87.3     TT5F= 2648.     PT5/PT2= 84.4     M2= .349    PSI= 24.57    PCI= 22.17
     AT 4  RMS12=  .072,  RMS23=  .380,  RMS34=  .919            AT 8  RMS12=  .065,  RMS23=  .340,  RMS34=  .293
           150.HZ  A( 4)=  .222RMSPSI,   A( 8)=  .195RMSPSI,   PHASE( 4 8)=   10.3DEG.
          3375.HZ  A( 4)=  .588RMSPSI,   A( 8)=  .065RMSPSI,   PHASE( 4 8)=  131.7DEG.
          6725.HZ  A( 4)=  .309RMSPSI,   A( 8)=  .061RMSPSI,   PHASE( 4 8)=   94.9DEG.
  10   F/A= .0250    ETAC= 87.3     TT5F= 2376.     PT5/PT2= 83.1     M2= .371    PSI= 23.28    PCI= 20.71
     AT 4  RMS12=  .095,  RMS23=  .248,  RMS34= 1.230            AT 8  RMS12=  .108,  RMS23=  .297,  RMS34=  .445
          3325.HZ  A( 4)=  .945RMSPSI,   A( 8)=  .276RMSPSI,   PHASE( 4 8)=   99.2DEG.
          6625.HZ  A( 4)=  .349RMSPSI,   A( 8)=  .112RMSPSI,   PHASE( 4 8)=  175.7DEG.
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BIN.CHAMB.    4.75 INLET    .25Y F.H.     50% NOZ.      TUBE INJ.
    1     F/A=0.0000     ETAC=  0.0      TT5F=  938.      PT5/PT2= 42.4      M2= .496      PSI= 25.59      PCI= 11.47
       AT 4  RMS12=   .084,  RMS23=   .229,   RMS34=   .168             AT 8  RMS12=   .080,  RMS23=   .309,  RMS34=   .139
    2     F/A= .0648     ETAC= 74.6      TT5F= 3398.      PT5/PT2= 75.0      M2= .402      PSI= 31.77      PCI= 24.15
       AT 4  RMS12=   .185,  RMS23= 1.000,   RMS34= 1.460             AT 8  RMS12=   .113,  RMS23=   .682,  RMS34= 1.340
              250.HZ   A( 4)=   .757RMSPSI,   A( 8)=   .550RMSPSI,   PHASE( 4 8)=   17.6DEG.
             2250.HZ   A( 4)=   .981RMSPSI,   A( 8)=   .982RMSPSI,   PHASE( 4 8)=  -82.2DEG.
             4475.HZ   A( 4)=   .206RMSPSI,   A( 8)=   .537RMSPSI,   PHASE( 4 8)= -127.3DEG.
    3     F/A= .0590     ETAC= 71.6      TT5F= 3203.      PT5/PT2= 74.2      M2= .417      PSI= 30.80      PCI= 24.16
       AT 4  RMS12=   .181,  RMS23=   .582,   RMS34= 1.260             AT 8  RMS12=   .157,  RMS23=   .459,  RMS34=   .576
              200.HZ   A( 4)=   .355RMSPSI,   A( 8)=   .266RMSPSI,   PHASE( 4 8)=   22.7DEG.
             3375.HZ   A( 4)=   .501RMSPSI,   A( 8)=   .045RMSPSI,   PHASE( 4 8)= -165.0DEG.
             3600.HZ   A( 4)=   .480RMSPSI,   A( 8)=   .198RMSPSI,   PHASE( 4 8)=   53.2DEG.
             3650.HZ   A( 4)=   .204RMSPSI,   A( 8)=   .293RMSPSI,   PHASE( 4 8)=   14.6DEG.
             6725.HZ   A( 4)=   .364RMSPSI,   A( 8)=   .079RMSPSI,   PHASE( 4 8)=  148.9DEG.
    4     F/A= .0491     ETAC= 78.8      TT5F= 3158.      PT5/PT2= 73.7      M2= .422      PSI= 30.47      PCI= 23.66
       AT 4  RMS12=   .142,  RMS23=   .547,   RMS34= 1.220             AT 8  RMS12=   .118,  RMS23=   .412,  RMS34=   .566
              200.HZ   A( 4)=   .257RMSPSI,   A( 8)=   .205RMSPSI,   PHASE( 4 8)=   29.4DEG.
             3425.HZ   A( 4)=   .580RMSPSI,   A( 8)=   .040RMSPSI,   PHASE( 4 8)= -148.1DEG.
             3625.HZ   A( 4)=   .384RMSPSI,   A( 8)=   .296RMSPSI,   PHASE( 4 8)=  -42.2DEG.
    5     F/A= .0519     ETAC= 76.0      TT5F= 3166.      PT5/PT2= 73.6      M2= .421      PSI= 30.27      PCI= 23.59
       AT 4  RMS12=   .158,  RMS23=   .512,   RMS34= 1.570             AT 8  RMS12=   .153,  RMS23=   .428,  RMS34=   .510
              200.HZ   A( 4)=   .236RMSPSI,   A( 8)=   .205RMSPSI,   PHASE( 4 8)=   21.9DEG.
             3425.HZ   A( 4)=   .919RMSPSI,   A( 8)=   .130RMSPSI,   PHASE( 4 8)= -171.4DEG.
             3600.HZ   A( 4)=   .463RMSPSI,   A( 8)=   .164RMSPSI,   PHASE( 4 8)=  -26.6DEG.
             6775.HZ   A( 4)=   .444RMSPSI,   A( 8)=   .041RMSPSI,   PHASE( 4 8)=  165.3DEG.
             6850.HZ   A( 4)=   .386RMSPSI,   A( 8)=   .147RMSPSI,   PHASE( 4 8)=  145.6DEG.
             7050.HZ   A( 4)=   .350RMSPSI,   A( 8)=   .027RMSPSI,   PHASE( 4 8)=   18.9DEG.
    6     F/A= .0466     ETAC= 79.1      TT5F= 3094.      PT5/PT2= 73.2      M2= .429      PSI= 29.96      PCI= 23.30
       AT 4  RMS12=   .177,  RMS23=   .482,   RMS34= 1.270             AT 8  RMS12=   .131,  RMS23=   .393,  RMS34=   .542
              175.HZ   A( 4)=   .229RMSPSI,   A( 8)=   .154RMSPSI,   PHASE( 4 8)=   10.7DEG.
             3475.HZ   A( 4)=   .682RMSPSI,   A( 8)=   .112RMSPSI,   PHASE( 4 8)= -171.2DEG.
             3625.HZ   A( 4)=   .181RMSPSI,   A( 8)=   .281RMSPSI,   PHASE( 4 8)=  -34.8DEG.
    7     F/A= .0407     ETAC= 82.8      TT5F= 2976.      PT5/PT2= 72.3      M2= .436      PSI= 29.16      PCI= 22.41
       AT 4  RMS12=   .148,  RMS23=   .456,   RMS34= 1.560             AT 8  RMS12=   .103,  RMS23=   .351,  RMS34=   .436
             3400.HZ   A( 4)=   .593RMSPSI,   A( 8)=   .088RMSPSI,   PHASE( 4 8)=  160.6DEG.
             3575.HZ   A( 4)=   .259RMSPSI,   A( 8)=   .154RMSPSI,   PHASE( 4 8)=  -37.2DEG.
             6725.HZ   A( 4)=   .691RMSPSI,   A( 8)=   .051RMSPSI,   PHASE( 4 8)= -170.9DEG.
    8     F/A= .0354     ETAC= 85.7      TT5F= 2823.      PT5/PT2= 71.1      M2= .446      PSI= 28.66      PCI= 21.73
       AT 4  RMS12=   .141,  RMS23=   .551,   RMS34= 1.650             AT 8  RMS12=   .056,  RMS23=   .374,  RMS34=   .394
              250.HZ   A( 4)=   .283RMSPSI,   A( 8)=   .192RMSPSI,   PHASE( 4 8)=   11.9DEG.
             3300.HZ   A( 4)=   .590RMSPSI,   A( 8)=   .071RMSPSI,   PHASE( 4 8)=  170.1DEG.
             3400.HZ   A( 4)=   .470RMSPSI,   A( [illegible]   .113RMSPSI,   PHASE( 4 8)=  164.6DEG.
             6650.HZ   A( 4)=   .855RMSPSI,   A[illegible]     .115RMSPSI,   PHASE( 4 8)= -116.3DEG.
    9     F/A= .0315     ETAC= 86.0      TT5F= [illegible]    PT5/PT2= 69.6      M2= .454      PSI= 28.10      PCI= 21.00
       AT 4  RMS12=   .166,  RMS23=   .428,   [illegible] 1.440             AT 8  RMS12=   .080,  RMS23=   .312,  RMS34=   .474
              175.HZ   A( 4)=   .168RMSPSI,   [illegible]   .133RMSPSI,   PHASE( 4 8)=   13.9DEG.
             1425.HZ   A( 4)=   .173RMSPSI,   A( 8)=   .027RMSPSI,   PHASE( 4 8)=   61.2DEG.
             1850.HZ   A( 4)=   .219RMSPSI,   A( 8)=   .039RMSPSI,   PHASE( 4 8)=  103.0DEG.
             3300.HZ   A( 4)=   .883RMSPSI,   A( 8)=   .187RMSPSI,   PHASE( 4 8)=  148.7DEG.
             5175.HZ   A( 4)=   .260RMSPSI,   A( 8)=   .099RMSPSI,   PHASE( 4 8)=  175.6DEG.
             6650.HZ   A( 4)=   .306RMSPSI,   A( 8)=   .114RMSPSI,   PHASE( 4 8)=  106.1DEG.
   10     F/A= .0255     ETAC= 55.9      TT5F= 1898.      PT5/PT2= 61.4      M2= .489      PSI= 26.23      PCI= 17.76
       AT 4  RMS12=   .257,  RMS23=   .391,   RMS34=   .122             AT 8  RMS12=   .216,  RMS23=   .305,  RMS34=   .127
              175.HZ   A( 4)=   .142RMSPSI,   A( 8)=   .095RMSPSI,   PHASE( 4 8)=   22.3DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    L/D=1.5       UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0     TT5F=  943.     PT5/PT2= 50.5    M2= .494    PSI= 21.53    PCI= 11.23
    AT 4  RMS12=  .107,  RMS23=  .271,  RMS34=  .145           AT 8  RMS12=  .207,  RMS23=  .376,  RMS34=  .192
  2    F/A= .0642    ETAC= 55.4     TT5F= 2777.     PT5/PT2= 78.1    M2= .387    PSI= 27.91    PCI= 24.08
    AT 4  RMS12=  .092,  RMS23=  .330,  RMS34=  .152           AT 8  RMS12=  .091,  RMS23=  .340,  RMS34=  .229
          275.HZ  A( 4)=  .146RMSPSI,  A( 8)=  .103RMSPSI,  PHASE( 4 8)=   20.2DEG.
          875.HZ  A( 4)=  .108RMSPSI,  A( 8)=  .085RMSPSI,  PHASE( 4 8)= -113.1DEG.
         3625.HZ  A( 4)=  .101RMSPSI,  A( 8)=  .070RMSPSI,  PHASE( 4 8)=   10.6DEG.
         3875.HZ  A( 4)=  .053RMSPSI,  A( 8)=  .150RMSPSI,  PHASE( 4 8)=  155.3DEG.
  3    F/A= .0601    ETAC= 53.4     TT5F= 2658.     PT5/PT2= 77.4    M2= .396    PSI= 27.19    PCI= 23.25
    AT 4  RMS12=  .080,  RMS23=  .286,  RMS34=  .165           AT 8  RMS12=  .080,  RMS23=  .291,  RMS34=  .204
          350.HZ  A( 4)=  .122RMSPSI,  A( 8)=  .105RMSPSI,  PHASE( 4 8)=     .3DEG.
         3575.HZ  A( 4)=  .098RMSPSI,  A( 8)=  .074RMSPSI,  PHASE( 4 8)=   17.3DEG.
         3850.HZ  A( 4)=  .040RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=  156.1DEG.
  4    F/A= .0541    ETAC= 55.2     TT5F= 2615.     PT5/PT2= 77.0    M2= .400    PSI= 26.98    PCI= 23.03
    AT 4  RMS12=  .116,  RMS23=  .328,  RMS34=  .242           AT 8  RMS12=  .098,  RMS23=  .358,  RMS34=  .285
          275.HZ  A( 4)=  .151RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)=  -15.5DEG.
         3525.HZ  A( 4)=  .153RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=   19.9DEG.
         3775.HZ  A( 4)=  .104RMSPSI,  A( 8)=  .191RMSPSI,  PHASE( 4 8)=  161.8DEG.
  5    F/A= .0492    ETAC= 59.4     TT5F= 2632.     PT5/PT2= 77.0    M2= .402    PSI= 26.97    PCI= 22.77
    AT 4  RMS12=  .126,  RMS23=  .342,  RMS34=  .960           AT 8  RMS12=  .151,  RMS23=  .334,  RMS34=  .454
          300.HZ  A( 4)=  .162RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=   -3.4DEG.
         1525.HZ  A( 4)=  .154RMSPSI,  A( 8)=  .069RMSPSI,  PHASE( 4 8)=   47.8DEG.
         1950.HZ  A( 4)=  .210RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=   22.4DEG.
         3450.HZ  A( 4)=  .451RMSPSI,  A( 8)=  .198RMSPSI,  PHASE( 4 8)=   36.9DEG.
         3750.HZ  A( 4)=  .079RMSPSI,  A( 8)=  .156RMSPSI,  PHASE( 4 8)=  171.2DEG.
         5000.HZ  A( 4)=  .182RMSPSI,  A( 8)=  .088RMSPSI,  PHASE( 4 8)=  -50.8DEG.
         5375.HZ  A( 4)=  .183RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)=   57.6DEG.
         6850.HZ  A( 4)=  .291RMSPSI,  A( 8)=  .063RMSPSI,  PHASE( 4 8)=  120.4DEG.
  6    F/A= .0442    ETAC= 58.3     TT5F= 2480.     PT5/PT2= 76.0    M2= .413    PSI= 26.21    PCI= 21.90
    AT 4  RMS12=  .152,  RMS23=  .407,  RMS34= 1.140           AT 8  RMS12=  .113,  RMS23=  .412,  RMS34=  .625
          275.HZ  A( 4)=  .196RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)=   -5.7DEG.
         1475.HZ  A( 4)=  .228RMSPSI,  A( 8)=  .119RMSPSI,  PHASE( 4 8)=    9.6DEG.
         1875.HZ  A( 4)=  .464RMSPSI,  A( 8)=  .239RMSPSI,  PHASE( 4 8)=   22.8DEG.
         3375.HZ  A( 4)=  .431RMSPSI,  A( 8)=  .235RMSPSI,  PHASE( 4 8)=   32.5DEG.
         4850.HZ  A( 4)=  .162RMSPSI,  A( 8)=  .196RMSPSI,  PHASE( 4 8)=  -32.9DEG.
         5250.HZ  A( 4)=  .364RMSPSI,  A( 8)=  .042RMSPSI,  PHASE( 4 8)=   51.1DEG.
         6700.HZ  A( 4)=  .187RMSPSI,  A( 8)=  .037RMSPSI,  PHASE( 4 8)=   98.8DEG.
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8IN.CHAMB.   4.75 INLET   .25Y F.H.    L/D=1.5      UNIF.INJ.
 1    F/A=0.0000    ETAC=  0.0     TT5F=  943.     PT5/PT2= 50.5    M2= .494    PSI= 21.53    PCI= 11.23
   AT 4  RMS12=  .111,  RMS23=  .298,  RMS34=  .149            AT 8  RMS12=  .229,  RMS23=  .368,  RMS34=  .187
 2    F/A= .0642    ETAC= 55.4     TT5F= 2777.     PT5/PT2= 78.1    M2= .387    PSI= 27.91    PCI= 24.08
   AT 4  RMS12=  .072,  RMS23=  .364,  RMS34=  .172            AT 8  RMS12=  .070,  RMS23=  .324,  RMS34=  .224
          275.HZ  A( 4)=  .184RMSPSI,  A( 8)=  .083RMSPSI,  PHASE( 4 8)=   53.0DEG.
          325.HZ  A( 4)=  .161RMSPSI,  A( 8)=  .143RMSPSI,  PHASE( 4 8)=    6.6DEG.
         3600.HZ  A( 4)=  .116RMSPSI,  A( 8)=  .075RMSPSI,  PHASE( 4 8)=   11.8DEG.
         3900.HZ  A( 4)=  .052RMSPSI,  A( 8)=  .146RMSPSI,  PHASE( 4 8)=  155.8DEG.
 3    F/A= .0601    ETAC= 53.4     TT5F= 2658.     PT5/PT2= 77.4    M2= .396    PSI= 27.19    PCI= 23.25
   AT 4  RMS12=  .080,  RMS23=  .285,  RMS34=  .174            AT 8  RMS12=  .091,  RMS23=  .304,  RMS34=  .210
          275.HZ  A( 4)=  .100RMSPSI,  A( 8)=  .103RMSPSI,  PHASE( 4 8)=  -14.7DEG.
          325.HZ  A( 4)=  .118RMSPSI,  A( 8)=  .095RMSPSI,  PHASE( 4 8)=    6.6DEG.
         3600.HZ  A( 4)=  .102RMSPSI,  A( 8)=  .073RMSPSI,  PHASE( 4 8)=   12.5DEG.
         3850.HZ  A( 4)=  .048RMSPSI,  A( 8)=  .124RMSPSI,  PHASE( 4 8)=  157.5DEG.
 4    F/A= .0541    ETAC= 55.2     TT5F= 2615.     PT5/PT2= 77.0    M2= .400    PSI= 26.98    PCI= 23.03
   AT 4  RMS12=  .098,  RMS23=  .329,  RMS34=  .212            AT 8  RMS12=  .097,  RMS23=  .363,  RMS34=  .248
          225.HZ  A( 4)=  .073RMSPSI,  A( 8)=  .116RMSPSI,  PHASE( 4 8)=  -89.9DEG.
          325.HZ  A( 4)=  .163RMSPSI,  A( 8)=  .123RMSPSI,  PHASE( 4 8)=   13.0DEG.
         3525.HZ  A( 4)=  .132RMSPSI,  A( 8)=  .074RMSPSI,  PHASE( 4 8)=   15.5DEG.
         3750.HZ  A( 4)=  .092RMSPSI,  A( 8)=  .159RMSPSI,  PHASE( 4 8)=  146.9DEG.
 5    F/A= .0492    ETAC= 59.4     TT5F= 2632.     PT5/PT2= 77.0    M2= .402    PSI= 26.97    PCI= 22.77
   AT 4  RMS12=  .119,  RMS23=  .334,  RMS34=  .854            AT 8  RMS12=  .169,  RMS23=  .344,  RMS34=  .423
          300.HZ  A( 4)=  .155RMSPSI,  A( 8)=  .111RMSPSI,  PHASE( 4 8)=   -9.9DEG.
         1950.HZ  A( 4)=  .131RMSPSI,  A( 8)=  .075RMSPSI,  PHASE( 4 8)=   15.9DEG.
         3425.HZ  A( 4)=  .445RMSPSI,  A( 8)=  .165RMSPSI,  PHASE( 4 8)=   41.5DEG.
         3800.HZ  A( 4)=  .050RMSPSI,  A( 8)=  .131RMSPSI,  PHASE( 4 8)=  174.5DEG.
         5000.HZ  A( 4)=  .147RMSPSI,  A( 8)=  .064RMSPSI,  PHASE( 4 8)=  -45.8DEG.
         5425.HZ  A( 4)=  .130RMSPSI,  A( 8)=  .032RMSPSI,  PHASE( 4 8)=   82.4DEG.
         6850.HZ  A( 4)=  .260RMSPSI,  A( 8)=  .057RMSPSI,  PHASE( 4 8)=   96.7DEG.
 6    F/A= .0442    ETAC= 58.3     TT5F= 2480.     PT5/PT2= 76.0    M2= .413    PSI= 26.21    PCI= 21.90
   AT 4  RMS12=  .062,  RMS23=  .367,  RMS34= 1.220            AT 8  RMS12=  .120,  RMS23=  .360,  RMS34=  .604
         1475.HZ  A( 4)=  .256RMSPSI,  A( 8)=  .101RMSPSI,  PHASE( 4 8)=   12.7DEG.
         1875.HZ  A( 4)=  .484RMSPSI,  A( 8)=  .277RMSPSI,  PHASE( 4 8)=   24.7DEG.
         3375.HZ  A( 4)=  .499RMSPSI,  A( 8)=  .261RMSPSI,  PHASE( 4 8)=   35.0DEG.
         4850.HZ  A( 4)=  .169RMSPSI,  A( 8)=  .203RMSPSI,  PHASE( 4 8)=  -29.3DEG.
         5275.HZ  A( 4)=  .454RMSPSI,  A( 8)=  .072RMSPSI,  PHASE( 4 8)=   55.3DEG.
         6675.HZ  A( 4)=  .250RMSPSI,  A( 8)=  .033RMSPSI,  PHASE( 4 8)=  106.1DEG.
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8IN.CHAMB.    4.75 INLET    .25Y F.H.     L/D=1.5       TUBE INJ.
    1     F/A=0.0000     ETAC=  0.0      TT5F=  968.      PT5/PT2= 51.4     M2= .494     PSI= 21.66     PCI= 11.52
      AT 4  RMS12=   .118,  RMS23=   .274,   RMS34=   .191                AT 8  RMS12=   .119,  RMS23=   .391,  RMS34=   .266
    2     F/A= .0655     ETAC= 31.8      TT5F= 2035.      PT5/PT2= 72.7     M2= .435     PSI= 24.72     PCI= 20.05
      AT 4  RMS12=   .099,  RMS23=   .275,   RMS34=   .119                AT 8  RMS12=   .092,  RMS23=   .277,  RMS34=   .142
    3     F/A= .0610     ETAC= 32.6      TT5F= 2029.      PT5/PT2= 72.5     M2= .437     PSI= 24.68     PCI= 19.94
      AT 4  RMS12=   .125,  RMS23=   .279,   RMS34=   .118                AT 8  RMS12=   .113,  RMS23=   .280,  RMS34=   .152
               300.HZ   A( 4)=   .119RMSPSI,   A( 8)=   .127RMSPSI,   PHASE( 4 8)=    12.7DEG.
    4     F/A= .0552     ETAC= 33.6      TT5F= 1994.      PT5/PT2= 72.1     M2= .439     PSI= 24.47     PCI= 19.66
      AT 4  RMS12=   .121,  RMS23=   .303,   RMS34=   .136                AT 8  RMS12=   .119,  RMS23=   .261,  RMS34=   .152
               225.HZ   A( 4)=   .111RMSPSI,   A( 8)=   .096RMSPSI,   PHASE( 4 8)=    -6.3DEG.
    5     F/A= .0500     ETAC= 35.4      TT5F= 1977.      PT5/PT2= 72.0     M2= .442     PSI= 24.34     PCI= 19.42
      AT 4  RMS12=   .099,  RMS23=   .242,   RMS34=   .140                AT 8  RMS12=   .107,  RMS23=   .239,  RMS34=   .141
               275.HZ   A( 4)=   .073RMSPSI,   A( 8)=   .094RMSPSI,   PHASE( 4 8)=   -53.7DEG.
    6     F/A= .0444     ETAC= 50.8      TT5F= 2295.      PT5/PT2= 74.4     M2= .422     PSI= 25.36     PCI= 20.83
      AT 4  RMS12=   .137,  RMS23=   .360,   RMS34=   .446                AT 8  RMS12=   .125,  RMS23=   .322,  RMS34=   .508
               275.HZ   A( 4)=   .183RMSPSI,   A( 8)=   .096RMSPSI,   PHASE( 4 8)=   -13.0DEG.
              3375.HZ   A( 4)=   .078RMSPSI,   A( 8)=   .066RMSPSI,   PHASE( 4 8)=    15.6DEG.
              3600.HZ   A( 4)=   .062RMSPSI,   A( 8)=   .067RMSPSI,   PHASE( 4 8)=   145.1DEG.
              4525.HZ   A( 4)=   .224RMSPSI,   A( 8)=   .332RMSPSI,   PHASE( 4 8)=    91.7DEG.
              9075.HZ   A( 4)=   .114RMSPSI,   A( 8)=   .215RMSPSI,   PHASE( 4 8)=   -40.2DEG.
    7     F/A= .0404     ETAC= 55.4      TT5F= 2311.      PT5/PT2= 74.3     M2= .422     PSI= 25.43     PCI= 20.72
      AT 4  RMS12=   .164,  RMS23=   .350,   RMS34=   .971                AT 8  RMS12=   .133,  RMS23=   .381,  RMS34=   .817
               125.HZ   A( 4)=   .118RMSPSI,   A( 8)=   .201RMSPSI,   PHASE( 4 8)=     4.2DEG.
              3425.HZ   A( 4)=   .552RMSPSI,   A( 8)=   .553RMSPSI,   PHASE( 4 8)=    38.1DEG.
    8     F/A= .0344     ETAC= 61.9      TT5F= 2278.      PT5/PT2= 74.1     M2= .427     PSI= 25.17     PCI= 20.47
      AT 4  RMS12=   .217,  RMS23=   .374,   RMS34=  1.030                AT 8  RMS12=   .179,  RMS23=   .406,  RMS34=   .818
              3300.HZ   A( 4)=   .344RMSPSI,   A( 8)=   .231RMSPSI,   PHASE( 4 8)=    34.4DEG.
              3425.HZ   A( 4)=   .572RMSPSI,   A( 8)=   .595RMSPSI,   PHASE( 4 8)=    43.2DEG.
              6725.HZ   A( 4)=   .379RMSPSI,   A( 8)=   .136RMSPSI,   PHASE( 4 8)=   109.9DEG.
              6875.HZ   A( 4)=   .246RMSPSI,   A( 8)=   .112RMSPSI,   PHASE( 4 8)=    78.4DEG.
    9     F/A= .0314     ETAC= 64.0      TT5F= 2221.      PT5/PT2= 73.6     M2= .430     PSI= 24.91     PCI= 20.05
      AT 4  RMS12=   .143,  RMS23=   .345,   RMS34=   .394                AT 8  RMS12=   .163,  RMS23=   .413,  RMS34=   .677
              3300.HZ   A( 4)=   .340RMSPSI,   A( 8)=   .251RMSPSI,   PHASE( 4 8)=    43.2DEG.
              3375.HZ   A( 4)=   .362RMSPSI,   A( 8)=   .324RMSPSI,   PHASE( 4 8)=    39.2DEG.
              6550.HZ   A( 4)=   .225RMSPSI,   A( 8)=   .084RMSPSI,   PHASE( 4 8)=    -4.6DEG.
   10     F/A= .0247     ETAC= 69.7      TT5F= 2081.      PT5/PT2= 72.2     M2= .445     PSI= 24.04     PCI= 18.87
      AT 4  RMS12=   .177,  RMS23=   .412,   RMS34=   .661                AT 8  RMS12=   .163,  RMS23=   .371,  RMS34=   .736
               150.HZ   A( 4)=   .157RMSPSI,   A( 8)=   .196RMSPSI,   PHASE( 4 8)=   -17.3DEG.
              1825.HZ   A( 4)=   .106RMSPSI,   A( 8)=   .077RMSPSI,   PHASE( 4 8)=    39.0DEG.
              3275.HZ   A( 4)=   .366RMSPSI,   A( 8)=   .342RMSPSI,   PHASE( 4 8)=    38.5DEG.
              3350.HZ   A( 4)=   .374RMSPSI,   A( 8)=   .405RMSPSI,   PHASE( 4 8)=    36.5DEG.
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8IN.CHAMB.    5.375INLET    NO F.HOLD.    BASELINE      UNIF.INJ.
  1    F/A= .0650    ETAC= 49.9    TT5F= 2616.    PT5/PT2= 90.6    M2= .359    PSI= 23.39    PCI= 22.93
     AT 4   RMS12=   .113,  RMS23=   .244,  RMS34=   .666          AT 8  RMS12=   .094,  RMS23=   .249,  RMS34=   .105
          125.HZ   A( 4)=  .196RMSPSI,   A( 8)=  .186RMSPSI,   PHASE( 4 8)=    11.8DEG.
          725.HZ   A( 4)=  .067RMSPSI,   A( 8)=  .107RMSPSI,   PHASE( 4 8)= -164.9DEG.
         1750.HZ   A( 4)=  .784RMSPSI,   A( 8)=  .091RMSPSI,   PHASE( 4 8)=    39.2DEG.
  2    F/A= .0579    ETAC= 52.9    TT5F= 2619.    PT5/PT2= 90.5    M2= .362    PSI= 23.28    PCI= 22.69
     AT 4   RMS12=   .190,  RMS23=   .409,  RMS34= 1.010           AT 8  RMS12=   .164,  RMS23=   .421,  RMS34=   .166
          100.HZ   A( 4)=  .151RMSPSI,   A( 8)=  .127RMSPSI,   PHASE( 4 8)=    13.6DEG.
          550.HZ   A( 4)=  .277RMSPSI,   A( 8)=  .317RMSPSI,   PHASE( 4 8)= -164.0DEG.
         1750.HZ   A( 4)=  .617RMSPSI,   A( 8)=  .100RMSPSI,   PHASE( 4 8)=    53.1DEG.
  3    F/A= .0543    ETAC= 78.1    TT5F= 3295.    PT5/PT2= 91.5    M2= .320    PSI= 26.50    PCI= 25.64
     AT 4   RMS12=   .337,  RMS23= 2.960,  RMS34= 2.130           AT 8  RMS12=   .325,  RMS23= 3.090,  RMS34=   .690
          150.HZ   A( 4)= 2.710RMSPSI,   A( 8)= 2.870RMSPSI,   PHASE( 4 8)=    10.7DEG.
          275.HZ   A( 4)=  .316RMSPSI,   A( 8)=  .212RMSPSI,   PHASE( 4 8)=    42.7DEG.
         1750.HZ   A( 4)= 1.190RMSPSI,   A( 8)=  .219RMSPSI,   PHASE( 4 8)=    -2.7DEG.
         1875.HZ   A( 4)=  .959RMSPSI,   A( 8)=  .234RMSPSI,   PHASE( 4 8)=    55.3DEG.
         2025.HZ   A( 4)=  .447RMSPSI,   A( 8)=  .193RMSPSI,   PHASE( 4 8)=    90.5DEG.
         5375.HZ   A( 4)=  .308RMSPSI,   A( 8)=  .049RMSPSI,   PHASE( 4 8)= -103.9DEG.
  4    F/A= .0491    ETAC= 76.1    TT5F= 3090.    PT5/PT2= 91.5    M2= .334    PSI= 25.13    PCI= 24.31
     AT 4   RMS12=   .732,  RMS23= 2.610,  RMS34= 2.200           AT 8  RMS12=   .654,  RMS23= 2.570,  RMS34=   .764
          150.HZ   A( 4)= 2.220RMSPSI,   A( 8)= 2.270RMSPSI,   PHASE( 4 8)=    10.8DEG.
          350.HZ   A( 4)=  .322RMSPSI,   A( 8)=  .204RMSPSI,   PHASE( 4 8)=    44.7DEG.
         1675.HZ   A( 4)=  .662RMSPSI,   A( 8)=  .217RMSPSI,   PHASE( 4 8)=    18.1DEG.
         1800.HZ   A( 4)= 1.000RMSPSI,   A( 8)=  .225RMSPSI,   PHASE( 4 8)=    23.1DEG.
         1925.HZ   A( 4)=  .677RMSPSI,   A( 8)=  .209RMSPSI,   PHASE( 4 8)=    57.0DEG.
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8IN.CHAMB.   5.375INLET   NO F.HOLD.   TTO=750R      UNIF.INJ.
     1   F/A=0.0000    ETAC=  0.0    TT5F=  751.    PT5/PT2= 84.9    M2= .753    PSI=  9.22    PCI= 10.40
       AT 4  RMS12=  .048,  RMS23=  .112,  RMS34=  .064            AT 8  RMS12=  .053,  RMS23=  .221,  RMS34=  .061
     2   F/A= .0647    ETAC= 48.5    TT5F= 2394.    PT5/PT2= 90.5    M2= .321    PSI= 22.78    PCI= 22.09
       AT 4  RMS12=  .145,  RMS23= 1.190,  RMS34=  .307            AT 8  RMS12=  .116,  RMS23= 1.410,  RMS34=  .205
              125.HZ  A( 4)=  .547RMSPSI,  A( 8)=  .547RMSPSI,  PHASE( 4 8)=    5.6DEG.
              650.HZ  A( 4)=  .919RMSPSI,  A( 8)= 1.200RMSPSI,  PHASE( 4 8)= -163.8DEG.
             1025.HZ  A( 4)=  .212RMSPSI,  A( 8)=  .022RMSPSI,  PHASE( 4 8)=  -36.4DEG.
             1275.HZ  A( 4)=  .115RMSPSI,  A( 8)=  .154RMSPSI,  PHASE( 4 8)=   22.6DEG.
             1675.HZ  A( 4)=  .734RMSPSI,  A( 8)=  .063RMSPSI,  PHASE( 4 8)=   48.6DEG.
     3   F/A= .0604    ETAC= 50.5    TT5F= 2405.    PT5/PT2= 90.7    M2= .322    PSI= 22.68    PCI= 21.98
       AT 4  RMS12=  .237,  RMS23= 1.670,  RMS34=  .217            AT 8  RMS12=  .218,  RMS23= 1.850,  RMS34=  .279
              125.HZ  A( 4)=  .828RMSPSI,  A( 8)=  .816RMSPSI,  PHASE( 4 8)=    7.9DEG.
              500.HZ  A( 4)=  .315RMSPSI,  A( 8)=  .173RMSPSI,  PHASE( 4 8)= -161.8DEG.
              625.HZ  A( 4)= 1.320RMSPSI,  A( 8)= 1.590RMSPSI,  PHASE( 4 8)= -166.0DEG.
             1125.HZ  A( 4)=  .149RMSPSI,  A( 8)=  .099RMSPSI,  PHASE( 4 8)=   69.2DEG.
             1250.HZ  A( 4)=  .172RMSPSI,  A( 8)=  .249RMSPSI,  PHASE( 4 8)=   29.9DEG.
     4   F/A= .0554    ETAC= 43.8    TT5F= 2115.    PT5/PT2= 90.7    M2= .350    PSI= 20.90    PCI= 20.36
       AT 4  RMS12=  .196,  RMS23= 2.890,  RMS34=  .659            AT 8  RMS12=  .185,  RMS23= 2.780,  RMS34=  .372
              125.HZ  A( 4)= 2.700RMSPSI,  A( 8)= 2.640RMSPSI,  PHASE( 4 8)=   10.5DEG.
              275.HZ  A( 4)=  .294RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)=   39.7DEG.
              500.HZ  A( 4)=  .587RMSPSI,  A( 8)=  .482RMSPSI,  PHASE( 4 8)= -172.5DEG.
              625.HZ  A( 4)=  .338RMSPSI,  A( 8)=  .299RMSPSI,  PHASE( 4 8)= -156.5DEG.
             1575.HZ  A( 4)=  .430RMSPSI,  A( 8)=  .139RMSPSI,  PHASE( 4 8)=    5.0DEG.
             1700.HZ  A( 4)=  .345RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)=   39.8DEG.
     5   F/A= .0506    ETAC= 39.2    TT5F= 1901.    PT5/PT2= 91.1    M2= .377    PSI= 19.32    PCI= 18.98
       AT 4  RMS12=  .761,  RMS23= 1.750,  RMS34=  .392            AT 8  RMS12=  .505,  RMS23= 1.560,  RMS34=  .145
              112.HZ  A( 4)= 1.130RMSPSI,  A( 8)=  .926RMSPSI,  PHASE( 4 8)=   13.0DEG.
              475.HZ  A( 4)=  .933RMSPSI,  A( 8)=  .884RMSPSI,  PHASE( 4 8)= -170.6DEG.
              575.HZ  A( 4)=  .326RMSPSI,  A( 8)=  .308RMSPSI,  PHASE( 4 8)= -161.5DEG.
              950.HZ  A( 4)=  .203RMSPSI,  A( 8)=  .159RMSPSI,  PHASE( 4 8)=   88.2DEG.
            15259.HZ  A( 4)=  .246RMSPSI,  A( 8)=  .040RMSPSI,  PHASE  4 8)=   33.7DEG.
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8IN.CHAMB.   5.375INLET    NO F.HOLD.    TT0=1250R     UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0     TT5F= 1227.      PT5/PT2= 84.6     M2= .768     PSI= 11.80     PCI= 13.37
     AT 4  RMS12=   .076,  RMS23=   .163,  RMS34=   .073              AT 8  RMS12=   .049,  RMS23=   .303,  RMS34=   .100
  2    F/A= .0651    ETAC= 76.2     TT5F= 3587.      PT5/PT2= 91.2     M2= .337     PSI= 27.85     PCI= 27.03
     AT 4  RMS12=   .288,  RMS23=   .224,  RMS34= 2.230              AT 8  RMS12=   .090,  RMS23=   .210,  RMS34=   .245
             125.HZ   A( 4)=  .137RMSPSI,  A( 8)=  .126RMSPSI,  PHASE( 4 8)=   19.5DEG.
            1900.HZ   A( 4)= 1.590RMSPSI,  A( 8)=  .109RMSPSI,  PHASE( 4 8)=   25.9DEG.
            3775.HZ   A( 4)=  .280RMSPSI,  A( 8)=  .023RMSPSI,  PHASE( 4 8)=  -59.0DEG.
            5675.HZ   A( 4)=  .340RMSPSI,  A( 8)=  .092RMSPSI,  PHASE( 4 8)=   53.7DEG.
            5825.HZ   A( 4)=  .238RMSPSI,  A( 8)=  .025RMSPSI,  PHASE( 4 8)=   11.4DEG.
  3    F/A= .0610    ETAC= 77.3     TT5F= 3565.      PT5/PT2= 91.3     M2= .343     PSI= 27.45     PCI= 26.75
     AT 4  RMS12=   .332,  RMS23=   .257,  RMS34= 2.000              AT 8  RMS12=   .127,  RMS23=   .249,  RMS34=   .251
             125.HZ   A( 4)=  .157RMSPSI,  A( 8)=  .158RMSPSI,  PHASE( 4 8)=   16.3DEG.
            1875.HZ   A( 4)= 1.370RMSPSI,  A( 8)=  .110RMSPSI,  PHASE( 4 8)=   47.1DEG.
            3775.HZ   A( 4)=  .202RMSPSI,  A( 8)=  .035RMSPSI,  PHASE( 4 8)=  176.9DEG.
            5600.HZ   A( 4)=  .290RMSPSI,  A( 8)=  .062RMSPSI,  PHASE( 4 8)= -111.9DEG.
  4    F/A= .0545    ETAC= 74.1     TT5F= 3349.      PT5/PT2= 91.1     M2= .362     PSI= 26.30     PCI= 25.73
     AT 4  RMS12=   .127,  RMS23=   .278,  RMS34= 2.190              AT 8  RMS12=   .096,  RMS23=   .278,  RMS34=   .354
             100.HZ   A( 4)=  .153RMSPSI,  A( 8)=  .139RMSPSI,  PHASE( 4 8)=   17.6DEG.
             200.HZ   A( 4)=  .154RMSPSI,  A( 8)=  .145RMSPSI,  PHASE( 4 8)=   25.6DEG.
            1850.HZ   A( 4)= 2.010RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)=   33.7DEG.
            2050.HZ   A( 4)=  .120RMSPSI,  A( 8)=  .060RMSPSI,  PHASE( 4 8)=  104.9DEG.
            3725.HZ   A( 4)=  .155RMSPSI,  A( 8)=  .021RMSPSI,  PHASE( 4 8)=  -67.1DEG.
            5550.HZ   A( 4)=  .311RMSPSI,  A( 8)=  .190RMSPSI,  PHASE( 4 8)= -121.3DEG.
            5750.HZ   A( 4)=  .157RMSPSI,  A( 8)=  .026RMSPSI,  PHASE( 4 8)=  143.9DEG.
  5    F/A= .0489    ETAC= 80.4     TT5F= 3360.      PT5/PT2= 91.3     M2= .360     PSI= 26.25     PCI= 25.70
     AT 4  RMS12=   .194,  RMS23=   .279,  RMS34= 2.620              AT 8  RMS12=   .088,  RMS23=   .314,  RMS34=   .428
             125.HZ   A( 4)=  .200RMSPSI,  A( 8)=  .224RMSPSI,  PHASE( 4 8)=   19.6DEG.
            1850.HZ   A( 4)= 2.480RMSPSI,  A( 8)=  .195RMSPSI,  PHASE( 4 8)=   51.4DEG.
            3700.HZ   A( 4)=  .195RMSPSI,  A( 8)=  .069RMSPSI,  PHASE( 4 8)=  -87.4DEG.
            5650.HZ   A( 4)=  .252RMSPSI,  A( 8)=  .060RMSPSI,  PHASE( 4 8)= -155.2DEG.
  6    F/A= .0462    ETAC= 81.5     TT5F= 3307.      PT5/PT2= 91.3     M2= .366     PSI= 25.73     PCI= 25.22
     AT 4  RMS12=   .130,  RMS23=   .403,  RMS34= 2.560              AT 8  RMS12=   .120,  RMS23=   .407,  RMS34=   .430
             125.HZ   A( 4)=  .312RMSPSI,  A( 8)=  .318RMSPSI,  PHASE( 4 8)=   18.0DEG.
            1850.HZ   A( 4)= 2.280RMSPSI,  A( 8)=  .204RMSPSI,  PHASE( 4 8)=   57.4DEG.
            3675.HZ   A( 4)=  .177RMSPSI,  A( 8)=  .104RMSPSI,  PHASE( 4 8)=  -88.9DEG.
            5525.HZ   A( 4)=  .185RMSPSI,  A( 8)=  .177RMSPSI,  PHASE( 4 8)=  115.6DEG.
            5600.HZ   A( 4)=  .340RMSPSI,  A( 8)=  .038RMSPSI,  PHASE( 4 8)= -152.3DEG.
  7    F/A= .0409    ETAC= 75.7     TT5F= 2992.      PT5/PT2= 91.1     M2= .391     PSI= 24.21     PCI= 23.81
     AT 4  RMS12=   .242,  RMS23=   .497,  RMS34= 2.850              AT 8  RMS12=   .179,  RMS23=   .411,  RMS34= 1.240
              75.HZ   A( 4)=  .239RMSPSI,  A( 8)=  .181RMSPSI,  PHASE( 4 8)=     .1DEG.
             200.HZ   A( 4)=  .287RMSPSI,  A( 8)=  .215RMSPSI,  PHASE( 4 8)=   28.1DEG.
            1875.HZ   A( 4)= 1.960RMSPSI,  A( 8)=  .236RMSPSI,  PHASE( 4 8)=   40.5DEG.
            2100.HZ   A( 4)=  .683RMSPSI,  A( 8)=  .721RMSPSI,  PHASE( 4 8)=  122.7DEG.
            3775.HZ   A( 4)=  .287RMSPSI,  A( 8)=  .072RMSPSI,  PHASE( 4 8)= -104.6DEG.
            5725.HZ   A( 4)=  .392RMSPSI,  A( 8)=  .054RMSPSI,  PHASE( 4 8)=  158.7DEG.
            5850.HZ   A( 4)=  .344RMSPSI,  A( 8)=  .364RMSPSI,  PHASE( 4 8)=   53.9DEG.
  8    F/A= .0355    ETAC= 68.1     TT5F= 2647.      PT5/PT2= 90.8     M2= .424     PSI= 22.23     PCI= 21.95
     AT 4  RMS12=   .129,  RMS23=   .406,  RMS34= 2.660              AT 8  RMS12=   .084,  RMS23=   .324,  RMS34= 1.140
             175.HZ   A( 4)=  .289RMSPSI,  A( 8)=  .186RMSPSI,  PHASE( 4 8)=   40.2DEG.
            1725.HZ   A( 4)=  .458RMSPSI,  A( 8)=  .173RMSPSI,  PHASE( 4 8)=   73.1DEG.
            1850.HZ   A( 4)= 1.840RMSPSI,  A( 8)=  .476RMSPSI,  PHASE( 4 8)=   52.4DEG.
            2025.HZ   A( 4)=  .288RMSPSI,  A( 8)=  .706RMSPSI,  PHASE( 4 8)=  -44.8DEG.
            3750.HZ   A( 4)=  .378RMSPSI,  A( 8)=  .049RMSPSI,  PHASE( 4 8)=   17.1DEG.
            5625.HZ   A( 4)=  .579RMSPSI,  A( 8)=  .064RMSPSI,  PHASE( 4 8)=  176.7DEG.
            5750.HZ   A( 4)=  .502RMSPSI,  A( 8)=  .061RMSPSI,  PHASE( 4 8)=  150.2DEG.
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BIN.CHAMB.    5.375INLET    NO F.HOLD.    LOW FLOW     UNIF.INJ.
  1    F/A=0.0000    ETAC= 0.0     TT5F=  943.     PT5/PT2= 83.7     M2= .784    PSI=  6.11    PCI=  6.96
     AT 4  RMS12= .028, RMS23=  .085,  RMS34=  .047          AT 8  RMS12=  .045,  RMS23=  .142,  RMS34=  .059
  2    F/A= .0660    ETAC= 46.6    TT5F= 2505.     PT5/PT2= 90.5     M2= .366    PSI= 13.82    PCI= 13.44
     AT 4  RMS12= .075, RMS23=  .141,  RMS34=  .631          AT 8  RMS12=  .074,  RMS23=  .150,  RMS34=  .100
           125.HZ  A( 4)=  .079RMSPSI,  A( 8)=  .081RMSPSI,  PHASE( 4 8)=   10.6DEG.
           550.HZ  A( 4)=  .032RMSPSI,  A( 8)=  .038RMSPSI,  PHASE( 4 8)= -176.4DEG.
           725.HZ  A( 4)=  .035RMSPSI,  A( 8)=  .057RMSPSI,  PHASE( 4 8)= -152.7DEG.
          1725.HZ  A( 4)=  .531RMSPSI,  A( 8)=  .058RMSPSI,  PHASE( 4 8)=   45.2DEG.
          3450.HZ  A( 4)=  .049RMSPSI,  A( 8)=  .003RMSPSI,  PHASE( 4 8)= -145.9DEG.
       F/A= .0617    ETAC= 45.5    TT5F= 2423.     PT5/PT2= 90.6     M2= .375    PSI= 13.38    PCI= 13.04
     AT 4  RMS12= .134, RMS23=  .256,  RMS34=  .626          AT 8  RMS12=  .107,  RMS23=  .271,  RMS34=  .105
           125.HZ  A( 4)=  .108RMSPSI,  A( 8)=  .111RMSPSI,  PHASE( 4 8)=   13.7DEG.
           575.HZ  A( 4)=  .183RMSPSI,  A( 8)=  .204RMSPSI,  PHASE( 4 8)= -163.8DEG.
          1700.HZ  A( 4)=  .528RMSPSI,  A( 8)=  .070RMSPSI,  PHASE( 4 8)=   65.3DEG.
  4    F/A= .0568    ETAC= 63.4    TT5F= 2902.     PT5/PT2= 91.2     M2= .341    PSI= 14.82    PCI= 14.38
     AT 4  RMS12= .169, RMS23= 1.230,  RMS34=  .894          AT 8  RMS12=  .145,  RMS23= 1.250,  RMS34=  .309
           150.HZ  A( 4)= 1.110RMSPSI,  A( 8)= 1.140RMSPSI,  PHASE( 4 8)=   11.1DEG.
           275.HZ  A( 4)=  .135RMSPSI,  A( 8)=  .074RMSPSI,  PHASE( 4 8)=   51.2DEG.
          1700.HZ  A( 4)=  .514RMSPSI,  A( 8)=  .135RMSPSI,  PHASE( 4 8)=   21.0DEG.
          1825.HZ  A( 4)=  .331RMSPSI,  A( 8)=  .131RMSPSI,  PHASE( 4 8)=   80.9DEG.
  5    F/A= .0519    ETAC= 63.1    TT5F= 2790.     PT5/PT2= 91.3     M2= .351    PSI= 14.37    PCI= 13.98
     AT 4  RMS12= .192, RMS23= 1.000,  RMS34= 1.190          AT 8  RMS12=  .188,  RMS23= 1.040,  RMS34=  .357
           150.HZ  A( 4)=  .895RMSPSI,  A( 8)=  .943RMSPSI,  PHASE( 4 8)=   13.6DEG.
           300.HZ  A( 4)=  .132RMSPSI,  A( 8)=  .075RMSPSI,  PHASE( 4 8)=   41.5DEG.
          1700.HZ  A( 4)=  .815RMSPSI,  A( 8)=  .140RMSPSI,  PHASE( 4 8)=   23.3DEG.
          1850.HZ  A( 4)=  .343RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=   69.9DEG.
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8IN.CHAMB.   5.375INLET   NO F.HOLD.   40% NOZ.      UNIF.INJ.
   1    F/A=0.0000     ETAC=  0.0      TT5F= 1017.     PT5/PT2= 90.7     M2= .551     PSI= 11.92     PCI= 12.87
     AT 4  RMS12=  .053,  RMS23=   .153,  RMS34=   .078                  AT 8  RMS12=   .029,  RMS23=  .155,  RMS34=   .077
   2    F/A= .0660     ETAC= 59.5      TT5F= 2930.     PT5/PT2= 94.9     M2= .273     PSI= 24.51     PCI= 24.24
     AT 4  RMS12=  .427,  RMS23= 4.650,  RMS34=   .219                  AT 8  RMS12=   .395,  RMS23= 4.670,  RMS34=   .217
           125.HZ  A( 4)= 4.400RMSPSI,  A( 8)= 4.510RMSPSI,  PHASE( 4 8)=   11.0DEG.
           250.HZ  A( 4)= 1.040RMSPSI,  A( 8)=  .606RMSPSI,  PHASE( 4 8)=   28.5DEG.
           375.HZ  A( 4)=  .494RMSPSI,  A( 8)=  .162RMSPSI,  PHASE( 4 8)=  121.8DEG.
           500.HZ  A( 4)=  .399RMSPSI,  A( 8)=  .257RMSPSI,  PHASE( 4 8)=  147.5DEG.
           625.HZ  A( 4)=  .523RMSPSI,  A( 8)=  .414RMSPSI,  PHASE( 4 8)=  174.5DEG.
           750.HZ  A( 4)=  .310RMSPSI,  A( 8)=  .310RMSPSI,  PHASE( 4 8)=  178.9DEG.
   3    F/A= .0616     ETAC= 57.5      TT5F= 2815.     PT5/PT2= 94.1     M2= .280     PSI= 23.93     PCI= 23.63
     AT 4  RMS12=  .234,  RMS23= 3.890,  RMS34=   .213                  AT 8  RMS12=   .260,  RMS23= 3.960,  RMS34=   .273
           125.HZ  A( 4)= 3.700RMSPSI,  A( 8)= 3.850RMSPSI,  PHASE( 4 8)=   12.1DEG.
           250.HZ  A( 4)=  .819RMSPSI,  A( 8)=  .579RMSPSI,  PHASE( 4 8)=   25.6DEG.
           375.HZ  A( 4)=  .366RMSPSI,  A( 8)=  .118RMSPSI,  PHASE( 4 8)=  119.8DEG.
           525.HZ  A( 4)=  .318RMSPSI,  A( 8)=  .265RMSPSI,  PHASE( 4 8)=  131.1DEG.
           650.HZ  A( 4)=  .379RMSPSI,  A( 8)=  .279RMSPSI,  PHASE( 4 8)=  176.7DEG.
   4    F/A= .0560     ETAC= 52.9      TT5F= 2587.     PT5/PT2= 93.9     M2= .295     PSI= 22.60     PCI= 22.34
     AT 4  RMS12=  .180,  RMS23= 2.980,  RMS34=   .212                  AT 8  RMS12=   .249,  RMS23= 3.010,  RMS34=   .214
           125.HZ  A( 4)= 2.820RMSPSI,  A( 8)= 2.910RMSPSI,  PHASE( 4 8)=   13.7DEG.
           250.HZ  A( 4)=  .523RMSPSI,  A( 8)=  .325RMSPSI,  PHASE( 4 8)=   34.0DEG.
           400.HZ  A( 4)=  .323RMSPSI,  A( 8)=  .086RMSPSI,  PHASE( 4 8)=  164.2DEG.
           525.HZ  A( 4)=  .235RMSPSI,  A( 8)=  .324RMSPSI,  PHASE( 4 8)=  161.4DEG.
           650.HZ  A( 4)=  .264RMSPSI,  A( 8)=  .216RMSPSI,  PHASE( 4 8)=  175.0DEG.
           775.HZ  A( 4)=  .213RMSPSI,  A( 8)=  .237RMSPSI,  PHASE( 4 8)= -154.9DEG.
   5    F/A= .0504     ETAC= 49.0      TT5F= 2359.     PT5/PT2= 93.7     M2= .309     PSI= 21.78     PCI= 21.57
     AT 4  RMS12=  .226,  RMS23= 3.310,  RMS34=   .338                  AT 8  RMS12=   .295,  RMS23= 3.330,  RMS34=   .234
           125.HZ  A( 4)= 3.070RMSPSI,  A( 8)= 3.140RMSPSI,  PHASE( 4 8)=   13.2DEG.
           275.HZ  A( 4)=  .641RMSPSI,  A( 8)=  .465RMSPSI,  PHASE( 4 8)=   35.5DEG.
           400.HZ  A( 4)=  .328RMSPSI,  A( 8)=  .202RMSPSI,  PHASE( 4 8)=  163.7DEG.
           525.HZ  A( 4)=  .283RMSPSI,  A( 8)=  .286RMSPSI,  PHASE( 4 8)=  177.6DEG.
           650.HZ  A( 4)=  .314RMSPSI,  A( 8)=  .344RMSPSI,  PHASE( 4 8)=  176.9DEG.
          1725.HZ  A( 4)=  .150RMSPSI,  A( 8)=  .053RMSPSI,  PHASE( 4 8)=   -5.6DEG.
          1875.HZ  A( 4)=  .130RMSPSI,  A( 8)=  .085RMSPSI,  PHASE( 4 8)=   25.3DEG.
          2000.HZ  A( 4)=  .061RMSPSI,  A( 8)=  .115RMSPSI,  PHASE( 4 8)=   63.1DEG.
   6    F/A= .0469     ETAC= 53.8      TT5F= 2423.     PT5/PT2= 94.8     M2= .310     PSI= 21.66     PCI= 21.47
     AT 4  RMS12=  .703,  RMS23= 2.150,  RMS34= 1.070                  AT 8  RMS12=   .557,  RMS23= 2.060,  RMS34=   .533
           125.HZ  A( 4)= 1.800RMSPSI,  A( 8)= 1.780RMSPSI,  PHASE( 4 8)=   14.4DEG.
           250.HZ  A( 4)=  .294RMSPSI,  A( 8)=  .224RMSPSI,  PHASE( 4 8)=   14.3DEG.
           475.HZ  A( 4)=  .327RMSPSI,  A( 8)=  .327RMSPSI,  PHASE( 4 8)= -151.3DEG.
           575.HZ  A( 4)=  .301RMSPSI,  A( 8)=  .251RMSPSI,  PHASE( 4 8)=  179.8DEG.
          1600.HZ  A( 4)=  .473RMSPSI,  A( 8)=  .204RMSPSI,  PHASE( 4 8)=   22.3DEG.
          1750.HZ  A( 4)=  .506RMSPSI,  A( 8)=  .194RMSPSI,  PHASE( 4 8)=   40.1DEG.
   1    F/A= .0648     ETAC= 50.3      TT5F= 2608.     PT5/PT2= 93.7     M2= .285     PSI= 23.46     PCI= 23.10
   2    F/A= .0601     ETAC= 49.0      TT5F= 2517.     PT5/PT2= 93.6     M2= .295     PSI= 22.82     PCI= 22.55
   3    F/A= .0546     ETAC= 46.9      TT5F= 2382.     PT5/PT2= 93.4     M2= .307     PSI= 22.15     PCI= 21.88
   4    F/A= .0498     ETAC= 48.8      TT5F= 2354.     PT5/PT2= 93.6     M2= .311     PSI= 21.86     PCI= 21.56
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8IN.CHAMB.    5.375INLET    NO F.HOLD.    60% NOZ.      UNIF.INJ.
  1    F/A=0.0000    ETAC=  0.0     TT5F=   524.     PT5/PT2= 73.2    M2= .824    PSI=  8.17    PCI=   7.70
     AT 4  RMS12=  .073,  RMS23=  .221,  RMS34=  .039              AT 8  RMS12=  .110,  RMS23=  .370,  RMS34=  .092
  2    F/A=0.0000    ETAC=  0.0     TT5F=   950.     PT5/PT2= 71.8    M2= .849    PSI= 11.28    PCI= 10.53
     AT 4  RMS12=  .138,  RMS23=  .303,  RMS34= 2.410              AT 8  RMS12=  .143,  RMS23=  .307,  RMS34=  .240
            175.HZ  A( 4)=  .164RMSPSI,  A( 8)=  .204RMSPSI,  PHASE( 4 8)=   14.9DEG.
           1800.HZ  A( 4)= 1.990RMSPSI,  A( 8)=  .111RMSPSI,  PHASE( 4 8)=   53.4DEG.
           3575.HZ  A( 4)=  .112RMSPSI,  A( 8)=  .018RMSPSI,  PHASE( 4 8)=   45.3DEG.
           5375.HZ  A( 4)=  .749RMSPSI,  A( 8)=  .113RMSPSI,  PHASE( 4 8)=  151.7DEG.
           5875.HZ  A( 4)=  .139RMSPSI,  A( 8)=  .006RMSPSI,  PHASE( 4 8)= -150.5DEG.
           7175.HZ  A( 4)=  .226RMSPSI,  A( 8)=  .019RMSPSI,  PHASE( 4 8)=  141.3DEG.
  3    F/A= .0647    ETAC= 77.7     TT5F=  3512.     PT5/PT2= 88.3    M2= .360    PSI= 28.12    PCI= 26.29
     AT 4  RMS12=  .113,  RMS23=  .357,  RMS34= 2.380              AT 8  RMS12=  .104,  RMS23=  .420,  RMS34=  .233
            200.HZ  A( 4)=  .238RMSPSI,  A( 8)=  .290RMSPSI,  PHASE( 4 8)=   21.6DEG.
           1775.HZ  A( 4)= 2.100RMSPSI,  A( 8)=  .104RMSPSI,  PHASE( 4 8)=   53.3DEG.
           3550.HZ  A( 4)=  .172RMSPSI,  A( 8)=  .016RMSPSI,  PHASE( 4 8)=   -7.6DEG.
           5325.HZ  A( 4)=  .658RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)= -157.7DEG.
           7100.HZ  A( 4)=  .297RMSPSI,  A( 8)=  .031RMSPSI,  PHASE( 4 8)=  130.3DEG.
  4    F/A= .0618    ETAC= 79.4     TT5F=  3511.     PT5/PT2= 88.3    M2= .360    PSI= 28.05    PCI= 26.16
     AT 4  RMS12=  .135,  RMS23= 1.310,  RMS34= 2.740              AT 8  RMS12=  .096,  RMS23= 1.420,  RMS34=  .552
            200.HZ  A( 4)= 1.180RMSPSI,  A( 8)= 1.270RMSPSI,  PHASE( 4 8)=   26.3DEG.
            400.HZ  A( 4)=  .182RMSPSI,  A( 8)=  .175RMSPSI,  PHASE( 4 8)=   86.1DEG.
            600.HZ  A( 4)=  .097RMSPSI,  A( 8)=  .136RMSPSI,  PHASE( 4 8)= -143.3DEG.
           1550.HZ  A( 4)=  .559RMSPSI,  A( 8)=  .086RMSPSI,  PHASE( 4 8)=  135.2DEG.
           1750.HZ  A( 4)= 2.120RMSPSI,  A( 8)=  .212RMSPSI,  PHASE( 4 8)=   41.6DEG.
           1950.HZ  A( 4)=  .522RMSPSI,  A( 8)=  .226RMSPSI,  PHASE( 4 8)=  131.3DEG.
           2150.HZ  A( 4)=  .186RMSPSI,  A( 8)=  .164RMSPSI,  PHASE( 4 8)=  172.1DEG.
           3500.HZ  A( 4)=  .180RMSPSI,  A( 8)=  .025RMSPSI,  PHASE( 4 8)=   34.4DEG.
           5250.HZ  A( 4)=  .663RMSPSI,  A( 8)=  .130RMSPSI,  PHASE( 4 8)=   70.8DEG.
  5    F/A= .0557    ETAC= 81.7     TT5F=  3431.     PT5/PT2= 88.6    M2= .357    PSI= 27.54    PCI= 25.75
     AT 4  RMS12=  .452,  RMS23=  .573,  RMS34= 2.510              AT 8  RMS12=  .400,  RMS23=  .566,  RMS34=  .529
             50.HZ  A( 4)=  .467RMSPSI,  A( 8)=  .403RMSPSI,  PHASE( 4 8)=    6.7DEG.
            125.HZ  A( 4)=  .375RMSPSI,  A( 8)=  .357RMSPSI,  PHASE( 4 8)=   18.3DEG.
           1700.HZ  A( 4)= 1.810RMSPSI,  A( 8)=  .282RMSPSI,  PHASE( 4 8)=   52.3DEG.
           3425.HZ  A( 4)=  .165RMSPSI,  A( 8)=  .031RMSPSI,  PHASE( 4 8)=  -22.2DEG.
           4950.HZ  A( 4)=  .292RMSPSI,  A( 8)=  .361RMSPSI,  PHASE( 4 8)=   70.7DEG.
           5050.HZ  A( 4)=  .200RMSPSI,  A( 8)=  .158RMSPSI,  PHASE( 4 8)=   29.5DEG.
           5125.HZ  A( 4)=  .479RMSPSI,  A( 8)=  .100RMSPSI,  PHASE( 4 8)=   31.2DEG.
  6    F/A= .0484    ETAC= 73.4     TT5F=  3004.     PT5/PT2= 87.8    M2= .401    PSI= 25.35    PCI= 23.86
     AT 4  RMS12=  .128,  RMS23= 1.330,  RMS34= 1.660              AT 8  RMS12=  .131,  RMS23= 1.240,  RMS34=  .749
            175.HZ  A( 4)= 1.280RMSPSI,  A( 8)= 1.200RMSPSI,  PHASE( 4 8)=   31.8DEG.
            375.HZ  A( 4)=  .162RMSPSI,  A( 8)=  .058RMSPSI,  PHASE( 4 8)=   16.4DEG.
            550.HZ  A( 4)=  .093RMSPSI,  A( 8)=  .107RMSPSI,  PHASE( 4 8)= -105.2DEG.
            600.HZ  A( 4)=  .083RMSPSI,  A( 8)=  .034RMSPSI,  PHASE( 4 8)= -115.5DEG.
           1450.HZ  A( 4)=  .322RMSPSI,  A( 8)=  .117RMSPSI,  PHASE( 4 8)=  114.5DEG.
           1625.HZ  A( 4)= 1.420RMSPSI,  A( 8)=  .365RMSPSI,  PHASE( 4 8)=   14.1DEG.
           1800.HZ  A( 4)=  .367RMSPSI,  A( 8)=  .518RMSPSI,  PHASE( 4 8)=   36.1DEG.
           1975.HZ  A( 4)=  .146RMSPSI,  A( 8)=  .173RMSPSI,  PHASE( 4 8)=   15.8DEG.
           3275.HZ  A( 4)=  .140RMSPSI,  A( 8)=  .009RMSPSI,  PHASE( 4 8)= -162.1DEG.
  7    F/A= .0454    ETAC= 47.1     TT5F=  2219.     PT5/PT2= 87.6    M2= .491    PSI= 23.27    PCI= 19.69
```

```
BIN.CHAMB.   5.375INLET   NO F.HOLD.   L/D=1.5     UNIF.INJ.
   1   F/A=0.0000    ETAC=  0.0    TT5F=  965.    PT5/PT2= 84.6    M2= .779    PSI= 10.29    PCI=  9.99
     AT 4  RMS12=  .030,  RMS23=  .119,  RMS34=  .067          AT 8  RMS12=  .094,  RMS23=  .250,  RMS34=  .093
   2   F/A= .0661    ETAC= 12.0    TT5F= 1389.    PT5/PT2= 88.5    M2= .535    PSI= 15.54    PCI= 15.34
     AT 4  RMS12=  .073,  RMS23=  .359,  RMS34=  .058          AT 8  RMS12=  .083,  RMS23=  .267,  RMS34=  .057
           300.HZ  A( 4)=  .332RMSPSI,  A( 8)=  .235RMSPSI,  PHASE( 4 8)=   11.3DEG.
           775.HZ  A( 4)=  .044RMSPSI,  A( 8)=  .027RMSPSI,  PHASE( 4 8)=   73.9DEG.
   3   F/A= .0611    ETAC= 11.3    TT5F= 1359.    PT5/PT2= 88.6    M2= .552    PSI= 15.05    PCI= 14.85
     AT 4  RMS12=  .089,  RMS23=  .336,  RMS34=  .070          AT 8  RMS12=  .097,  RMS23=  .239,  RMS34=  .064
           300.HZ  A( 4)=  .301RMSPSI,  A( 8)=  .198RMSPSI,  PHASE( 4 8)=   11.5DEG.
           775.HZ  A( 4)=  .041RMSPSI,  A( 8)=  .029RMSPSI,  PHASE( 4 8)=   70.1DEG.
   4   F/A= .0553    ETAC= 11.0    TT5F= 1333.    PT5/PT2= 88.5    M2= .566    PSI= 14.68    PCI= 14.49
     AT 4  RMS12=  .085,  RMS23=  .304,  RMS34=  .099          AT 8  RMS12=  .095,  RMS23=  .206,  RMS34=  .097
           300.HZ  A( 4)=  .280RMSPSI,  A( 8)=  .176RMSPSI,  PHASE( 4 8)=    6.8DEG.
          1525.HZ  A( 4)=  .070RMSPSI,  A( 8)=  .068RMSPSI,  PHASE( 4 8)=    5.6DEG.
   5   F/A= .0508    ETAC= 11.3    TT5F= 1321.    PT5/PT2= 88.6    M2= .574    PSI= 14.31    PCI= 14.13
     AT 4  RMS12=  .069,  RMS23=  .430,  RMS34=  .126          AT 8  RMS12=  .085,  RMS23=  .308,  RMS34=  .131
           300.HZ  A( 4)=  .398RMSPSI,  A( 8)=  .261RMSPSI,  PHASE( 4 8)=   12.5DEG.
           750.HZ  A( 4)=  .047RMSPSI,  A( 8)=  .044RMSPSI,  PHASE( 4 8)=   71.2DEG.
          1525.HZ  A( 4)=  .088RMSPSI,  A( 8)=  .093RMSPSI,  PHASE( 4 8)=    4.1DEG.
   6   F/A= .0452    ETAC= 11.7    TT5F= 1302.    PT5/PT2= 88.5    M2= .584    PSI= 14.13    PCI= 14.06
     AT 4  RMS12=  .138,  RMS23=  .261,  RMS34=  .146          AT 8  RMS12=  .146,  RMS23=  .231,  RMS34=  .159
            50.HZ  A( 4)=  .121RMSPSI,  A( 8)=  .129RMSPSI,  PHASE( 4 8)=    3.8DEG.
           300.HZ  A( 4)=  .201RMSPSI,  A( 8)=  .129RMSPSI,  PHASE( 4 8)=   12.7DEG.
           750.HZ  A( 4)=  .037RMSPSI,  A( 8)=  .055RMSPSI,  PHASE( 4 8)=   86.9DEG.
          1550.HZ  A( 4)=  .111RMSPSI,  A( 8)=  .122RMSPSI,  PHASE( 4 8)=   10.9DEG.
   7   F/A= .0402    ETAC=  9.7    TT5F= 1228.    PT5/PT2= 87.7    M2= .614    PSI= 13.41    PCI= 13.34
     AT 4  RMS12=  .208,  RMS23=  .152,  RMS34=  .223          AT 8  RMS12=  .230,  RMS23=  .204,  RMS34=  .290
          1475.HZ  A( 4)=  .177RMSPSI,  A( 8)=  .240RMSPSI,  PHASE( 4 8)=   15.9DEG.
```

SECTION VI

SUMMARY TABLES FOR LOW FREQUENCY COMBUSTION INSTABILITY

To summarize the data, tables were made that contained a space for every file tested. If a file had a combustion instability of less than 500 Hz, some data from the record with the largest amplitude instability was recorded in the space for that file. Blank spaces indicate that no instability of less than 500 Hz was observed for that file.

1. DESCRIPTION OF DATA IN THE SUMMARY CHARTS

'D2'	=	Inlet diameter in inches
'F.H.'	=	Flameholder
'.0nn Tube Inj'	=	Diameter of orifice in the tube wall fuel injectors in inches
'FREQ'	=	Frequency of the peak amplitude of RMS pressure. Resolution bandwidth is 1.25 Hz.
'AMPL(4/8)'	=	The RMS pressure density of the oscillation at 4 (3 inches after dump on the top of the combustor) and at 8 (3 inches before the nozzle)
'PHASE'	=	The phase angle difference of the pressure oscillation from location 4 to location 8
'$TT5_F$'	=	Total temperature of the gasses as they leave the combustor, ^oR
'f/a'	=	Fuel air ratio where the highest amplitude combustion instability was observed for that file.
'NOZ'	=	A*/A3, the ratio of the nozzle throat area to the combustion chamber area
'$\dot{w}_a$'	=	The air mass flow entering the combustor
'T_{T_o}'	=	The total temperature of the air entering the combustor
'LC'	=	The length of the combustor in inches

2. SUMMARY CHARTS

TABLE 4

6 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ.
BASELINE CONDITIONS - NOZ=50%, T_{T_o}=1000°R, $\dot{W}_a$=4.0 lbs/sec, LC=18 in.

D2	F.H.		NOZ=40% $\dot{W}_a$=3.24 lbs/sec	T_{T_o}=750°R	BASELINE	T_{T_o}=1250°R	$\dot{W}_a$=2.49 lbs/sec	LC=9 in.	NOZ=60% $\dot{W}_a$=4.86 lbs/sec
4.0 in.	NONE	FREQ	125	**	203.75	222.5			208.75
		AMPL (4/8)	3.43/1.79		2.23/2.30	1.72/1.79			1.91/.757
		PHASE, $T_{T_{5F}}$	5.6° 3029		20.4° 2956	22.5° 3396			18.9° 2984
		f/a	.0675		.0664	.0648			.0548
4.0 in.	.25Y	FREQ	221.25		228.75		228.75		275
		AMPL (4/8)	4.72/2.06		4.10/3.78		2.79/.798		2.55/.810
		PHASE, $T_{T_{5F}}$	11.7° 3761		13.1° 3651		16.8° 3415		21.6° 3645
		f/a	.0626		.0666		.0636		.0650
4.0 in.	.35Y	FREQ	222.5	197.5					
		AMPL (4/8)	3.26/2.56	2.70/1.10					
		PHASE, $T_{T_{5F}}$	13.6° 3805	14.6° 2855					
		f/a	.0646	.0641					
3.5 in.	NONE	FREQ	218.75	180	207.5				
		AMPL (4/8)	2.54/2.26	1.03/-	1.55/1.46				
		PHASE, $T_{T_{5F}}$	18.3° 2992	- 2208	14.2° 3264				
		f/a	.0666	.0668	.0658				
3.5 in.	.25Y	FREQ	307.5	202.5					
		AMPL (4/8)	.872/.682	-/3.53					
		PHASE, $T_{T_{5F}}$	19.3° 3431	- 3403					
		f/a	.0514	.0515					
3.5 in.	.35Y	FREQ							
		AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							
3.0 in.	NONE	FREQ							
		AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							
3.0 in.	.25Y	FREQ							
		AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							
3.0 in.	.35Y	FREQ							
		AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							

* DATA DID NOT RECORD

** CONDITION DID NOT LIGHT

TABLE 5

6 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

TUBE WALL INJ.
BASELINE CONDITIONS - NOZ=50%, T_{T_O}=1000°R, $\dot{W}_a$=4 lbs/sec, LC=18 in.

D2 F.H.		NOZ=40% $\dot{W}_a$=3.24 lb/sec	T_{T_O}=750°R	BASELINE	T_{T_O}=1250°R	W_a=2.49 lbs/sec	LC=9 in.	NOZ=60% $\dot{W}_a$=4.86 lbs/sec
4.0 in.	FREQ	198.75	170	170	136.25			
NONE	AMPL (4/8)	1.55/.635	1.56/1.17	1.11/.773	2.28/1.83			
.059 Tube Inj	PHASE, T_{T5F}	22.2° 2089	18.5° 1991	19.0° 2471	11.4° 2971			
	f/a	.0256	.0255	.0407	.0582			
4.0 in.	FREQ	208.75	175	220		202.5		
.25Y	AMPL (4/8)	2.70/1.30	2.18/1.38	3.63/3.13		1.83/.515		
.059 Tube Inj	PHASE, T_{T5F}	21.3° 2804	18.4° 1991	16.8° 2988		25.3° 2608		
	f/a	.0423	.0491	.0548		.0452		
4.0 in.	FREQ	210		220		206.25		
.35Y	AMPL (4/8)	3.26/2.04		3.86/1.99		1.99/.422		
.059 Tube Inj	PHASE, T_{T5F}	15.5° 3204		20.3° 3103		20.0° 3796		
	f/a	.0583		.0634		.0641		
3.5 in.	FREQ	188.75	172.5	208.75	221.25	200	233.75	220
NONE	AMPL (4/8)	3.43/2.77	-/1.78	4.93/3.85	-/1.87	-/.795	.542/.457	2.27/1.52
.052 Tube Inj	PHASE, T_{T5F}	18.2° 2987	- 1963	23.9° 3008	- 3328	- 2514	8.4° 2385	22.3° 2794
	f/a	.0548	.0418	.0563	.0600	.0364	.0411	.0496
3.5 in.	FREQ		197.5					
.25Y	AMPL (4/8)		-/1.84					
.052 Tube Inj	PHASE, T_{T5F}		- 2790					
	f/a		.0511					
3.5 in.	FREQ					225		
.35Y	AMPL (4/8)					.633/.514		
.052 Tube Inj	PHASE, T_{T5F}					24.4° 1951		
	f/a					.0449		
3.0 in.	FREQ	208.75	166.25	197.5	203.75	205	**	
NONE	AMPL (4/8)	-/4.14	-/2.51	2.9/2.49	-/.925	-/.565		
.046 Tube Inj	PHASE, T_{T5F}	- 3224	- 2572	- 3283	- 3649	- 3060		
	f/a	.0582	.0552	.0593	.0694	.0546		
3.0 in.	FREQ							
.25Y	AMPL (4/8)							
.046 Tube Inj	PHASE, T_{T5F}							
	f/a							
3.0 in.	FREQ							
.35Y	AMPL (4/8)							
.046 Tube Inj	PHASE, T_{T5F}							
	f/a							
* DATA DID NOT RECORD								
** CONDITION DID NOT LIGHT								

TABLE 6

8 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ.
BASELINE CONDITIONS-NOZ=50%, TT_o=1000°R, $\dot{W}_a$=5.55 lbs/sec, L_C=24 in.

D2 / F.H.		NOZ=40% $\dot{W}_a$=4.44 lb/sec	TT_o=750°R	BASELINE	TT_o=1250°R	W_a=3.33 lb/sec	L_C=12 in.	NOZ=60% $\dot{W}_a$=6.66 lb/sec
5.375 in.	FREQ	126.25	125	141.25		138.75		180
NONE	AMPL (4/8)	2.24/2.38	1.13/1.12	1.80/1.93		.841/.887		.823/.764
	PHASE, TT_{5F}	10.7° 2531	9.4° 2115	10.5° 3295		11.7° 2902		32.2° 3008
	f/a	.0603	.0554	.0543		.0568		.0484
5.375 in.	FREQ	133.75	158.75	192.5		192.5	272.5	210
.25Y	AMPL (4/8)	2.33/2.40	2.12/2.03	1.51/1.29		1.04/.944	.416/.424	.668/.650
	PHASE, TT_{5F}	10.6° 3251	13.9° 2821	23.1° 2952		21.1° 3195	5.1° 2596	21.8° 3081
	f/a	.0510	.0550	.0455		.0564	.0651	.0470
5.375 in.	FREQ						277.5	
.35Y	AMPL (4/8)						.499/.385	
	PHASE, TT_{5F}						-1.3° 2816	
	f/a						.0449	
4.75 in.	FREQ	126.5	125	458.75				
NONE	AMPL (4/8)	2.42/2.40	1.15/1.18	.409/.194				
	PHASE, TT_{5F}	9.5° 2865	8.7° 2650	-179.1° 1742				
	f/a	.0648	.0584	.0446				
4.75 in.	FREQ	136.25	188.75			197.5		
.25Y	AMPL (4/8)	1.21/1.42	2.74/2.72			1.07/.782		
	PHASE, TT_{5F}	8.7° 3371	16.5° 3274			18.0° 3362		
	f/a	.0456	.0631			.0448		
4.75 in.	FREQ							
.35Y	AMPL (4/8)							
	PHASE, TT_{5F}							
	f/a							
4.00 in.	FREQ						75	
NONE	AMPL (4/8)						.398/.378	
	PHASE, TT_{5F}						2.4° 1383	
	f/a						.0647	
4.00 in.	FREQ							
.25Y	AMPL (4/8)							
	PHASE, TT_{5F}							
	f/a							
4.00 in.	FREQ							
.35Y	AMPL (4/8)							
	PHASE, TT_{5F}							
	f/a							

AFSC FORM JUL 61 185b GENERAL PURPOSE WORKSHEET ($10\frac{1}{2}$" X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

TABLE 7

8 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

WALL INJ

BASELINE CONDITIONS-NOZ=50%, T_{T_O}=1000°R, $\dot{W}_a$=5.55 lb/sec, L_C=24 in.

		NOZ=40% $\dot{W}_a$=4.44 lbs/sec	T_{T_O}=750°R	BASELINE	T_{T_O}=1250°R	$\dot{W}_a$=3.33 lbs/sec	L_C=12 in.	NOZ=60% $\dot{W}_a$=6.66 lbs/sec
5.375 in.	FREQ	121.25	128.75		123.75			127.5
NONE	AMPL (4/8)	2.26/2.20	.725/.709		.938/.795			.865/.750
.068 Tube Inj	PHASE, $T_{T_{5F}}$	12.9° 2592	7.4° 1897		14.6° 3141			17.4°
	f/a	.0427	.0250		.0534			.0413
5.375 in.	FREQ	133.75						
.25Y	AMPL (4/8)	3.10/3.02						
.068 Tube Inj	PHASE, $T_{T_{5F}}$	14.3° 2856						
	f/a	.0473						
5.375 in.	FREQ	133.75						200
.35Y	AMPL (4/8)	3.24/3.00						.658/.459
.068 Tube Inj	PHASE, $T_{T_{5F}}$	16.2° 3065						22.9° 3255
	f/a	.0504						.0609
4.75 in.	FREQ	131.25	168.75	132.5	135	123.75	190	196.25
NONE	AMPL (4/8)	3.29/3.15	1.45/1.23	3.26/2.74	2.72/2.04	1.63/1.45	.313/.284	1.53/1.27
.059 Tube Inj	PHASE, $T_{T_{5F}}$	9.9° 2899	13° 2007	12.1° 2992	11.6° 3457	11.4° 2757	10.0°	15.6° 2924
	f/a	.0447	.0304	.0511	.0639	.0470	.0407	.0434
4.75 in.	FREQ			221.25				
.25Y	AMPL (4/8)			.476/.420				
.059 Tube Inj	PHASE, $T_{T_{5F}}$			17.6° 3378				
	f/a			.0657				
4.75 in.	FREQ							
.35Y	AMPL (4/8)							
.059 Tube Inj	PHASE, $T_{T_{5F}}$							
	f/a							
4.0 in.	FREQ	127.5	176.25	206.25		202.5		198.75
NONE	AMPL (4/8)	3.68/3.30	1.91/1.66	1.47/1.27		.615/.520		.576/.382
.052 Tube Inj	PHASE, $T_{T_{5F}}$	9.7° 3303	12.5° 2814	16.0° 3371		17.2° 3125		12.7° 3293
	f/a	.0658	.0490	.0541		.0498		.0597
4.0 in.	FREQ							
.25Y	AMPL (4/8)							
.052 Tube Inj	PHASE, $T_{T_{5F}}$							
	f/a							
4.0 in.	FREQ							
.35Y	AMPL (4/8)							
.052 Tube Inj	PHASE, $T_{T_{5F}}$							
	f/a							

AFSC FORM JUL 61 185b GENERAL PURPOSE WORKSHEET (10½" X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

TABLE 8

12 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

TUBE WALL INJ.
BASELINE CONDITIONS - NOZ=50%, TT_o=1000°R, $\dot{W}_a$=8.33 lbs/sec, LC=36 in.

D2 F.H.		NOZ=40% $\dot{W}_a$=6.66 lbs/sec	TT_o=750°R	BASELINE	TT_o=1250°R	W_a=5 lbs/sec	LC=18 in.	NOZ=60% $\dot{W}_a$=10 lbs/sec
8 in.	FREQ	110.0	103.75	98.75		101.25	182.5	
NONE	AMPL (4/8)	.693/.709	.442/.427	.536/.441		.164/.134	1.20/.965	
.077 Tube Inj	PHASE, T_{T5F}	15.0° 3291	8.8° 2400	11.6° 3352		8.1° 2945	20.9° 2523	
	f/a	.0569	.0402	.0652		.0498	.0415	
8 in.	FREQ		107.5			126.25	121.25	
.25Y	AMPL (4/8)		1.65/1.44			.242/.193	.638/.482	
.077 Tube Inj	PHASE, T_{T5F}		13.3° 2979			11.7°	15.9° 2666	
	f/a		.0666				.0592	
8 in.	FREQ							
.35Y	AMPL (4/8)							
.077 Tube Inj	PHASE, T_{T5F}							
	f/a							
7 in.	FREQ	111.25	98.75	112.5		97.5		
NONE	AMPL (4/8)	.455/.410	1.90/1.66	1.17/.997		1.38/1.02		
.068 Tube Inj	PHASE, T_{T5F}	19.5° 3334	16.1° 2080	16.9° 3205		14.4° 2826		
	f/a	.0642	.0362	.0603		.0464		
7 in.	FREQ		110					
.25Y	AMPL (4/8)		1.02/.836					
.068 Tube Inj	PHASE, T_{T5F}		11.3° 2883					
	f/a		.0644					
7 in.	FREQ		121.25	*				
.35Y	AMPL (4/8)		.943/.727					
.068 Tube Inj	PHASE, T_{T5F}		12.4° 3375					
	f/a		.0651					
6 in.	FREQ		340	376.25		95		
NONE	AMPL (4/8)		.561/.336	.465/.293		.985/.67		
.059 Tube Inj	PHASE, T_{T5F}		175.8° 1771	179.3° 2426		9.4° 3277		
	f/a		.0313	.0400		.0640		
6 in.	FREQ							
.25Y	AMPL (4/8)							
.059 Tube Inj	PHASE, T_{T5F}							
	f/a							
6 in.	FREQ							
.35Y	AMPL (4/8)							
.059 Tube Inj	PHASE, T_{T5F}							
	f/a							

* DATA NOT RECORDED

AFSC FORM JUL 61 185b GENERAL PURPOSE WORKSHEET (10½" X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

TABLE 9

12 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETRICS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ.
BASELINE CONDITION - NOZ=50%, T_{T_0}=1000°R, $\dot{W}_a$=8.33 lbs/sec, LC=36 in.

D2	F.H.		NOZ=40% $\dot{W}_a$=6.66 lbs/sec	T_{T_0}=750°R	BASELINE	T_{T_0}=1250°R	$\dot{W}_a$=5 lbs/sec	LC=18 in.	NOZ=60% $\dot{W}_a$=10 lbs/sec
8 in.		FREQ	113.75	90°		172.5	75.0	176.25	
	NONE	AMPL (4/8)	.773/.897	.435/.458		.533/.524	.675/.509	1.23/1.13	
		PHASE, $T_{T_{5F}}$	21.2° 3639	15.5° 3146		9.0° 4013	7.2° 3485	20.3° 2988	
		f/a	.0546	.0497		.0614	.0637	.0539	
8 in.		FREQ	133.75	126.25	136.25		141.25	197.5	
	.25Y	AMPL (4/8)	1.89/1.82	2.65/2.47	1.01/.819		1.04/.933	2.31/1.98	
		PHASE, $T_{T_{5F}}$	6.3° 3896	0.0° 3609	13.0° 3233		10.1°	14.8° 3202	
		f/a	.0651	.0657	.0453			.0611	
8 in.		FREQ		121.25					
	.35Y	AMPL (4/8)		2.10/1.98					
		PHASE, $T_{T_{5F}}$		12.1°					
		f/a							
7 in.		FREQ	98.75	90	108.75	113.75		7.5	97.5
	NONE	AMPL (4/8)	.196/.213	1.80/1.76	.849/.903	1.26/1.15		.388/.330	.360/-
		PHASE, $T_{T_{5F}}$	19.2° 3656	13.7° 2812	18.4° 3720	15.6° 3781		5.7° 1771	- 2573
		f/a	.0659	.0653	.0656	.0632		.0655	.040
7 in.		FREQ		117.5					
	.25Y	AMPL (4/8)		2.03/1.94					
		PHASE, $T_{T_{5F}}$		11.0° 3555					
		f/a		.0653					
7 in.		FREQ							
	.35Y	AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							
6 in.		FREQ		321	355		353.75		
	NONE	AMPL (4/8)		.615/.346	.591/.404		.390/.285		
		PHASE, $T_{T_{5F}}$		-174.4° 1655	-166° 2064		-168.4° 2132		
		f/a		.0506	.0446		.0495		
6 in.		FREQ							
	.25Y	AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							
6 in.		FREQ							
	.35Y	AMPL (4/8)							
		PHASE, $T_{T_{5F}}$							
		f/a							

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SECTION VII

CONCLUSION

This report is meant only to present data in a timely manner so that interested parties can try to analyze the data to reach their own conclusions. Further testing and data reduction is in progress and, when completed, will be included in a report with analysis of Ramjet Combustion Instabilities.

APPENDIX

RMS PRESSURE

The RMS pressure is the square root of the time average of the square of the pressure or

$$\text{RMS Pressure} = \left[\int_0^{T_0} \frac{(P(t))^2\, dt}{T_0} \right]^{\frac{1}{2}} \tag{1}$$

where P(t) is the instantaneous pressure, t is time and T_0 is the time over which the RMS is taken.

For any periodic wave shape, the RMS value is proportional to the peak to peak value provided that the center pressure is zero.

For a sine wave, the instantaneous pressure is given by

$$P(t) = \frac{P_{TO}P}{2}\, \text{SIN}(w*t) \tag{2}$$

where $P_{TO}P$ is the peak to peak pressure and w is the frequency. By substituting Equation 2 into Equation 1 with integral limits at one cycle (RMS integrated over one cycle equals RMS integrated from zero to infinity).

$$\text{RMS} = \left[\int_0^{\frac{2\pi}{w}} \left(\frac{P_{TO}P}{2}\, \sin(w*t) \right)^2 dt/(2\pi/w) \right]^{\frac{1}{2}}$$

and solving

$$\text{RMS} = \frac{P_{TO}P}{2} \left[\int_0^{2\pi} \sin^2(w*t)\, dt\, \frac{w}{2\pi} \right]^{\frac{1}{2}}$$

$$\text{RMS} = \frac{P_{TO}P}{2} \left[\left(\frac{2\pi}{2w}\right) \left(\frac{w}{2\pi}\right) \right]^{\frac{1}{2}}$$

$$RMS = \frac{P_{TO}P}{2}\left(\frac{1}{2}\right)^{1/2} \tag{3}$$

The proportional constant is obtained.

Similarly, it can be shown that for a ramp wave*

$$RMS = \frac{P_{TO}P}{2}\left(\frac{1}{3}\right)^{1/2} \tag{4}$$

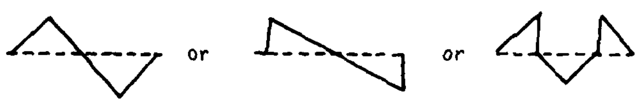
and for a square wave

$$RMS = \frac{P_{TO}P}{2} \tag{5}$$

The RMS spectrum is the RMS pressure of contiguous frequency bands and can be obtained with digital or analog electronics, or the RMS spectrum is a series of RMS values of sine waves that, when added together in the proper phase, will yield the input time history. The RMS spectrum is proportional to the Fourier Transform of a time domain function.

Some examples of input signals and their corresponding RMS spectrums are in Figures A-1 to A-12.

*a ramp wave is any wave shape consisting of only linear variations from zero to peak; i.e.,



The RMS spectrum is the square root of the power spectrum. The total power over a broad range of frequencies can be obtained by summing the power of all the contiguous frequency bands within the range of frequencies desired, or

$$\text{TOTAL POWER}\Big|_{\text{FREQ 2}}^{\text{FREQ 1}} = \sum_{\text{FREQ 1}}^{\text{FREQ 2}} \text{POWER}. \tag{6}$$

Then substituting RMS^2 for power yields

$$\text{TOTAL RMS}\Big|_{\text{FREQ 2}}^{\text{FREQ 1}} = \left[\sum_{\text{FREQ 1}}^{\text{FREQ 2}} (\text{RMS})^2\right]^{1/2} \tag{7}$$

Therefore, the broadband RMS can be calculated from the narrow band RMS values. Table A-1 shows total (broadband) and harmonic RMS for different wave shapes and for white binary noise.

In noise spectral analysis, the frequency bandwidth that a noise sample was divided into could lead to misinterpretation of data because for noise, the wider the bandwidth, the higher the amplitude of the power per band. Therefore, the noise measurement industry standardized to the power spectral density for presenting spectral noise data. The power spectral density is the power spectrum amplitude normalized to an equivalent value as if the bandwidth was one hertz.

The problem with the density normalization is that it must assure a flat profile across each frequency band and if there is a strong frequency peak within the bandwidth, which is usually the case for combustion instabilities, then normalization will average the peak over the bandwidth. The end result is that the wider the bandwidth the smaller a discrete peak would appear to be after normalization. Whether density normalization is used or not, presentation of spectral data must include the bandwidth the data was reduced into.

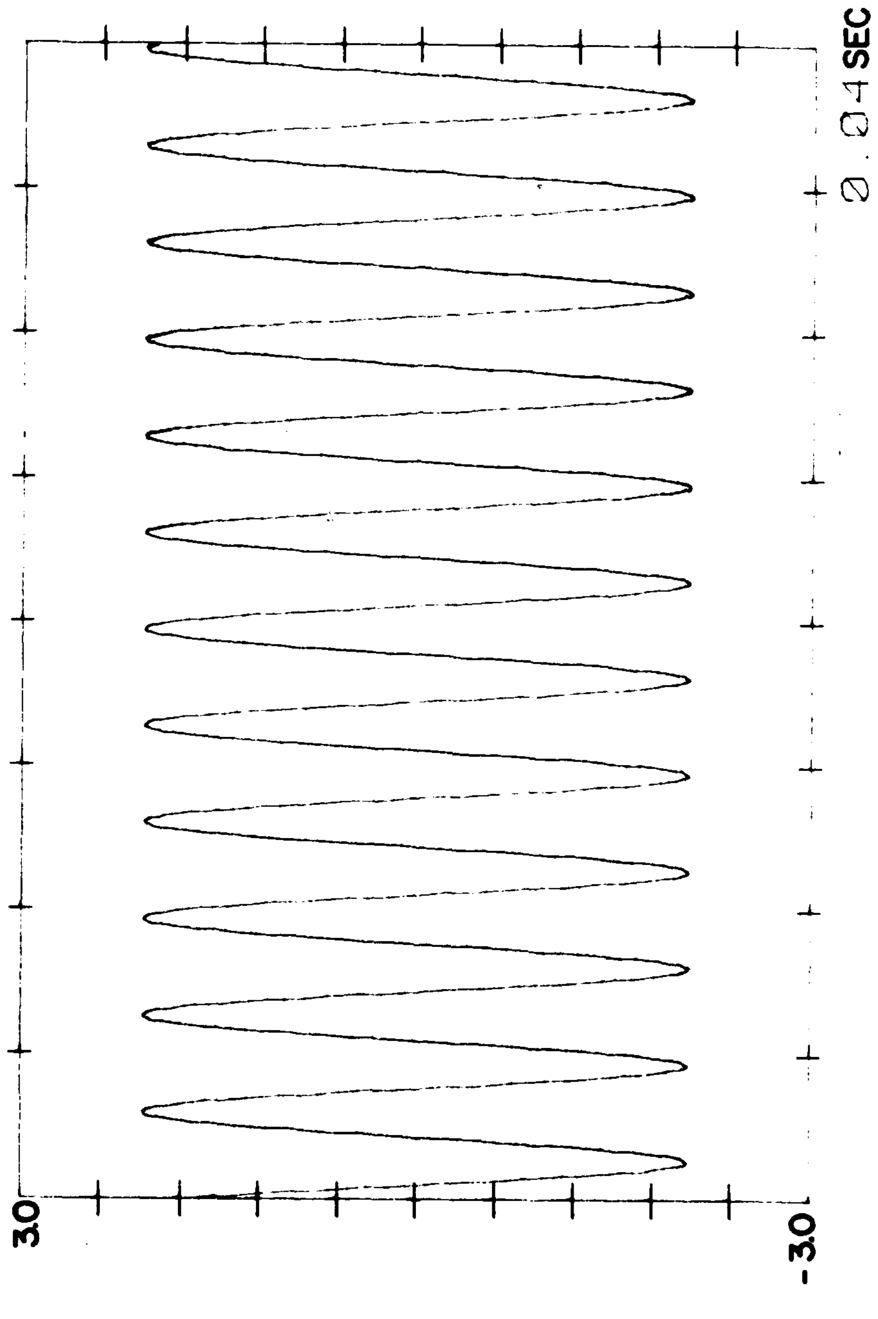


Figure A-1. 300 Hz Sine Wave

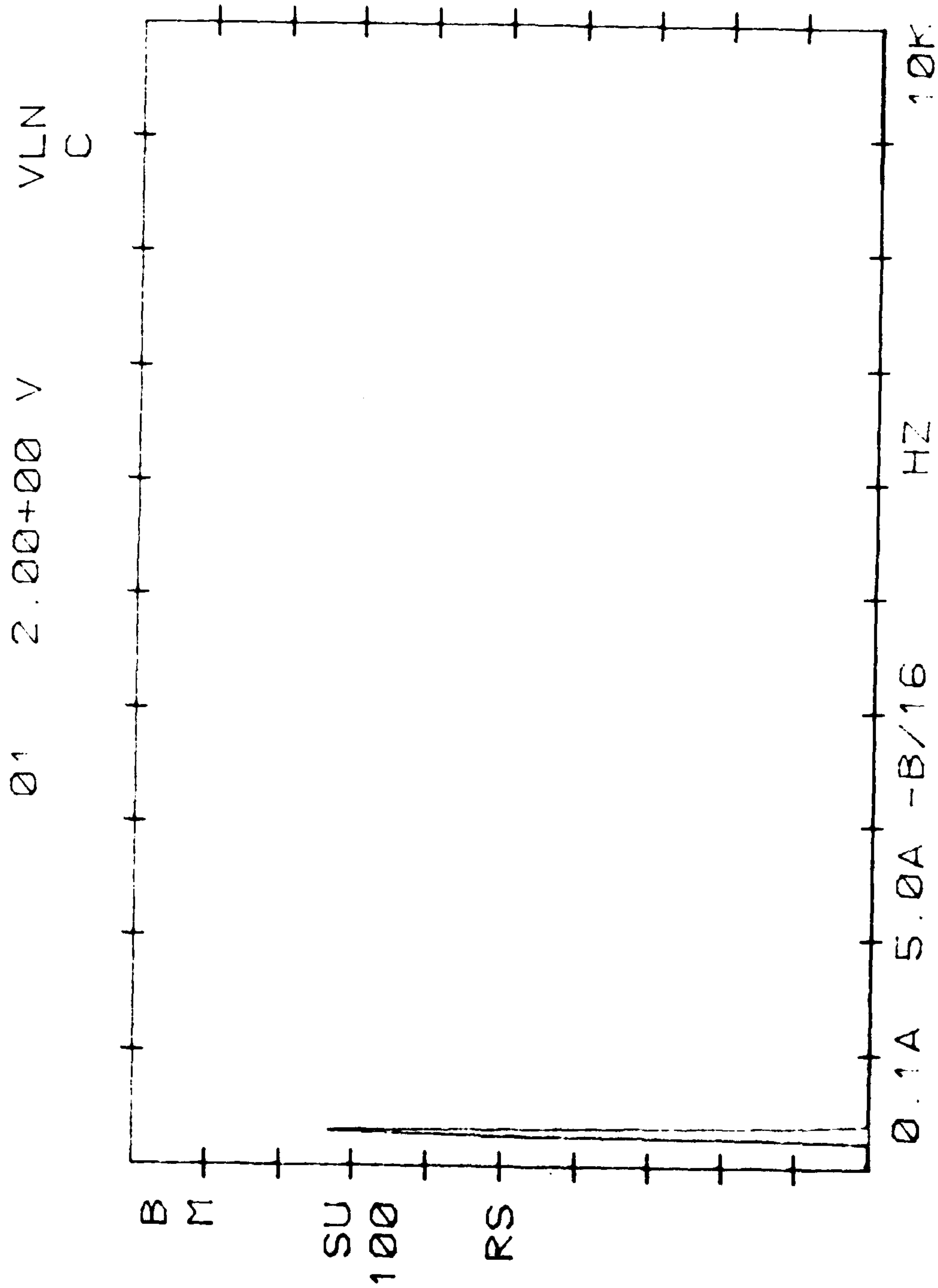


Figure A-2. RMS Spectrum of a Sine Wave

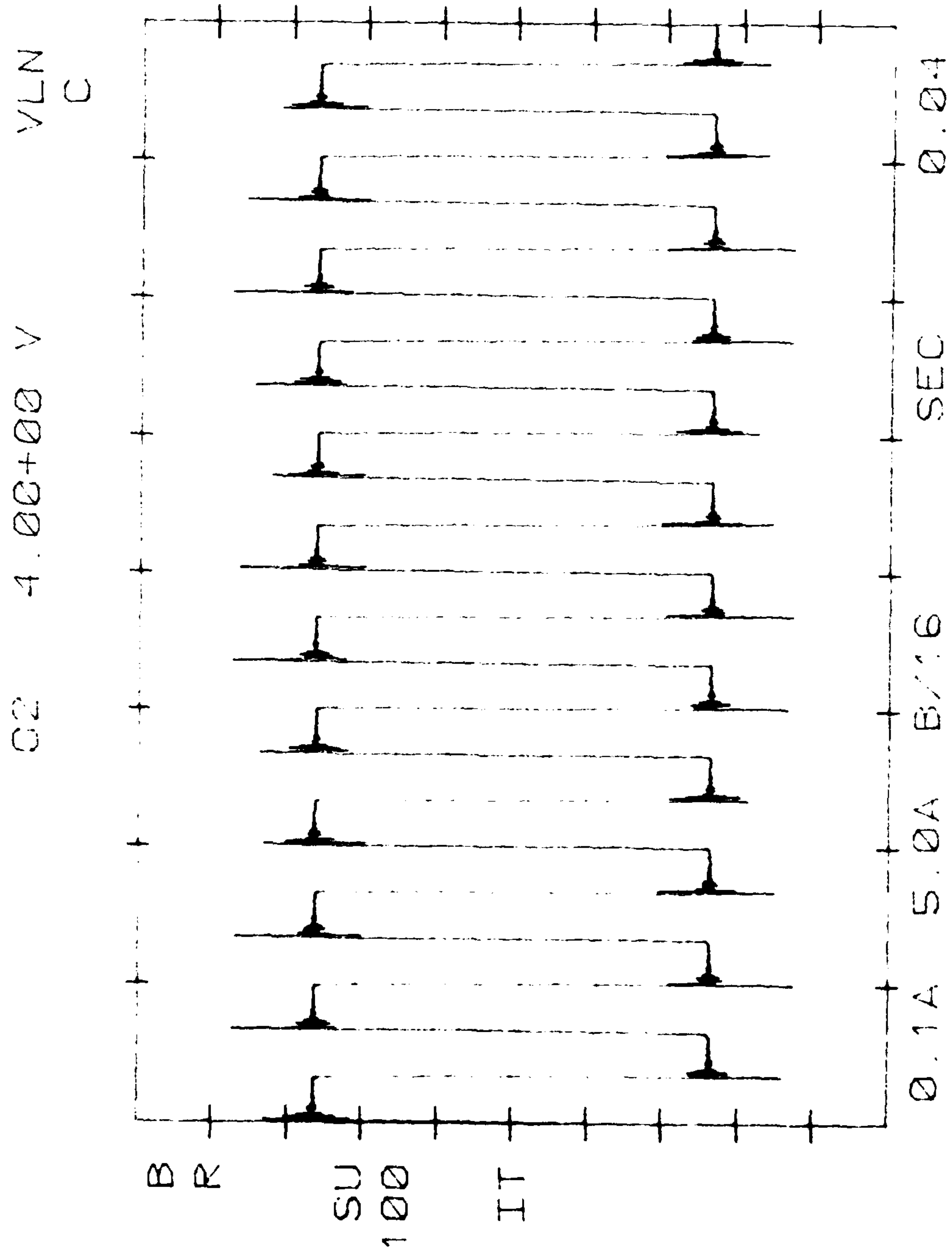


Figure A-3. 300 Hz Square Wave

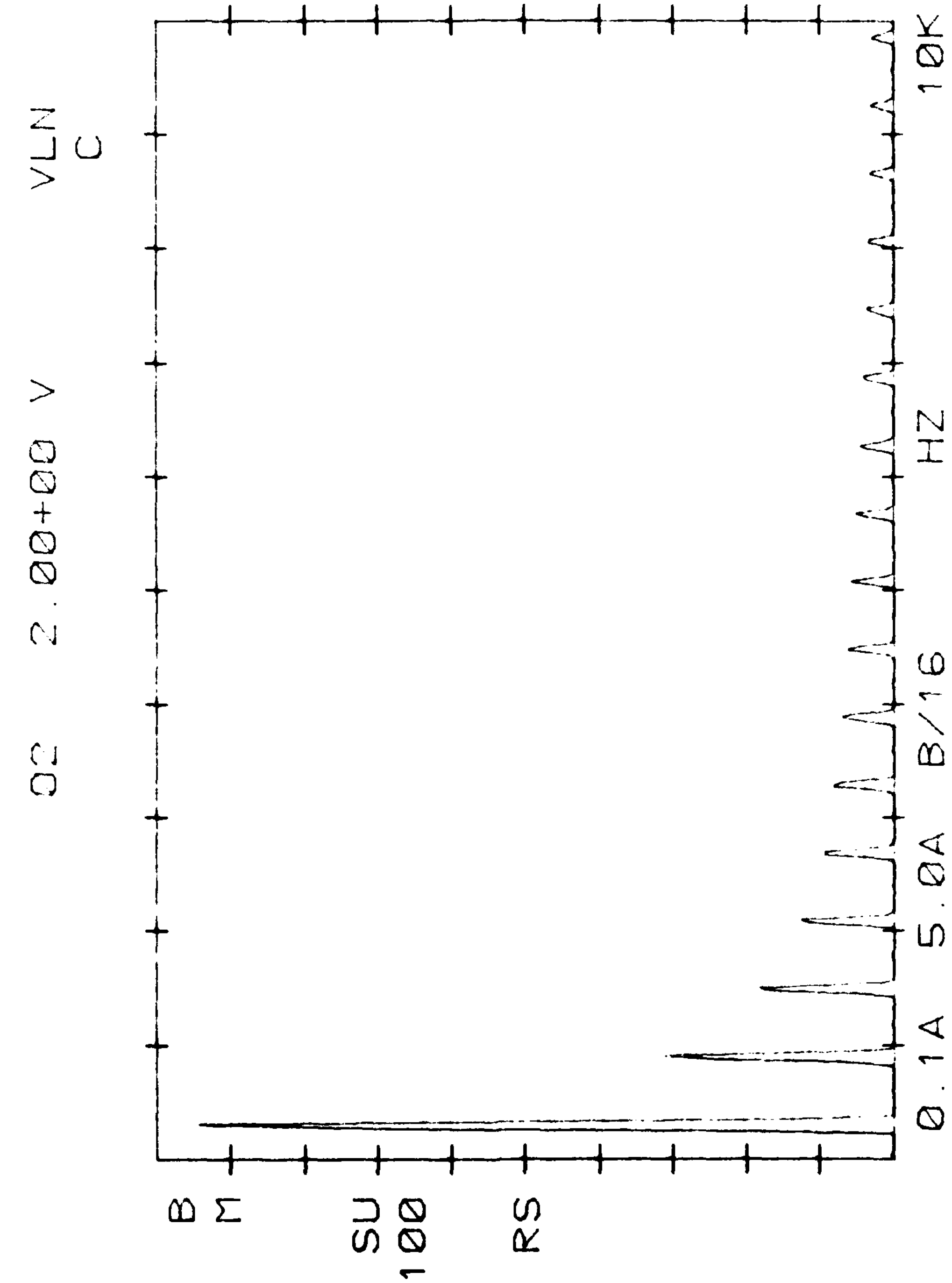


Figure A-4. RMS Spectrum of a Square Wave

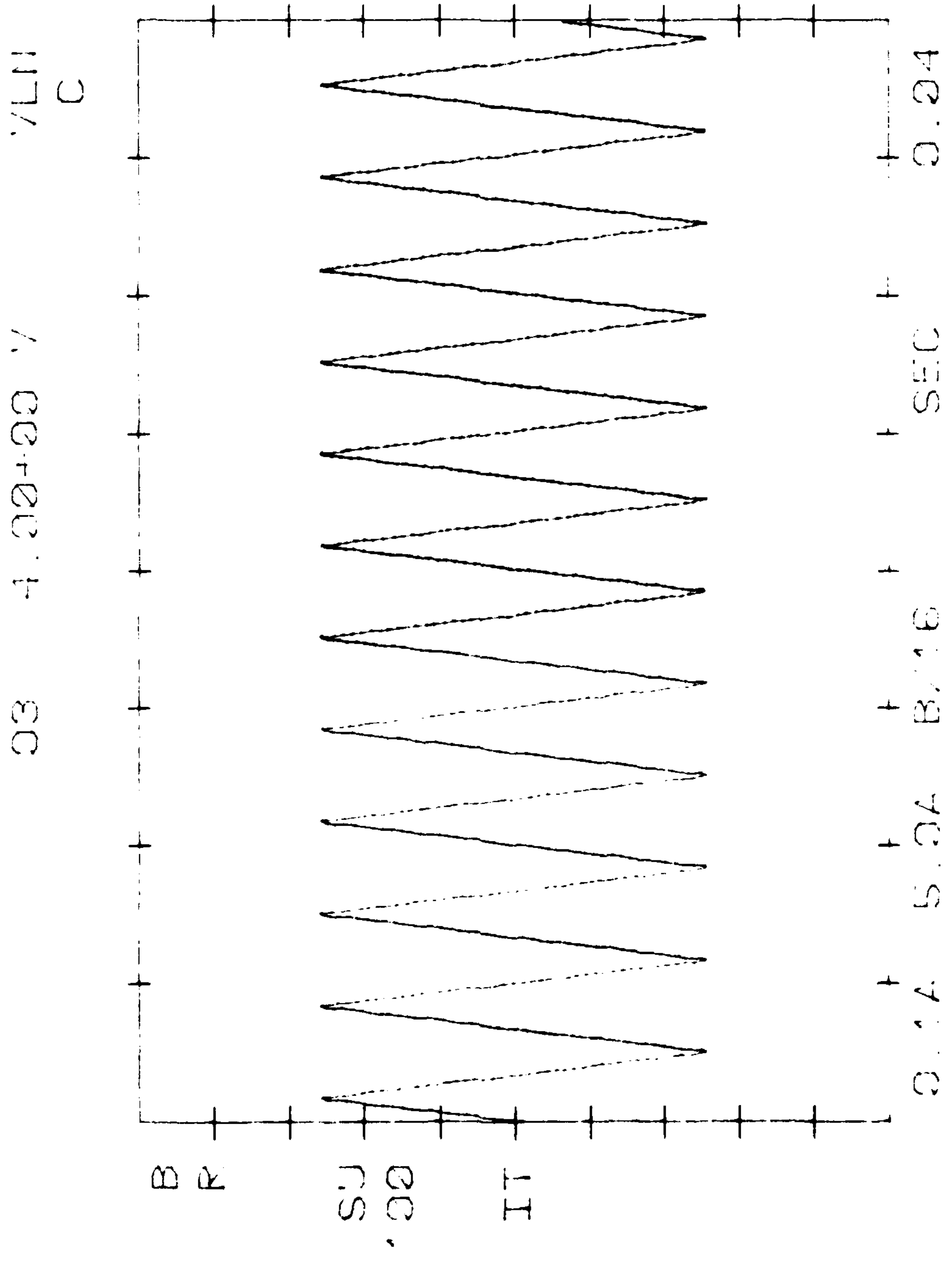


Figure A-5. 300 Hz Triangle Wave

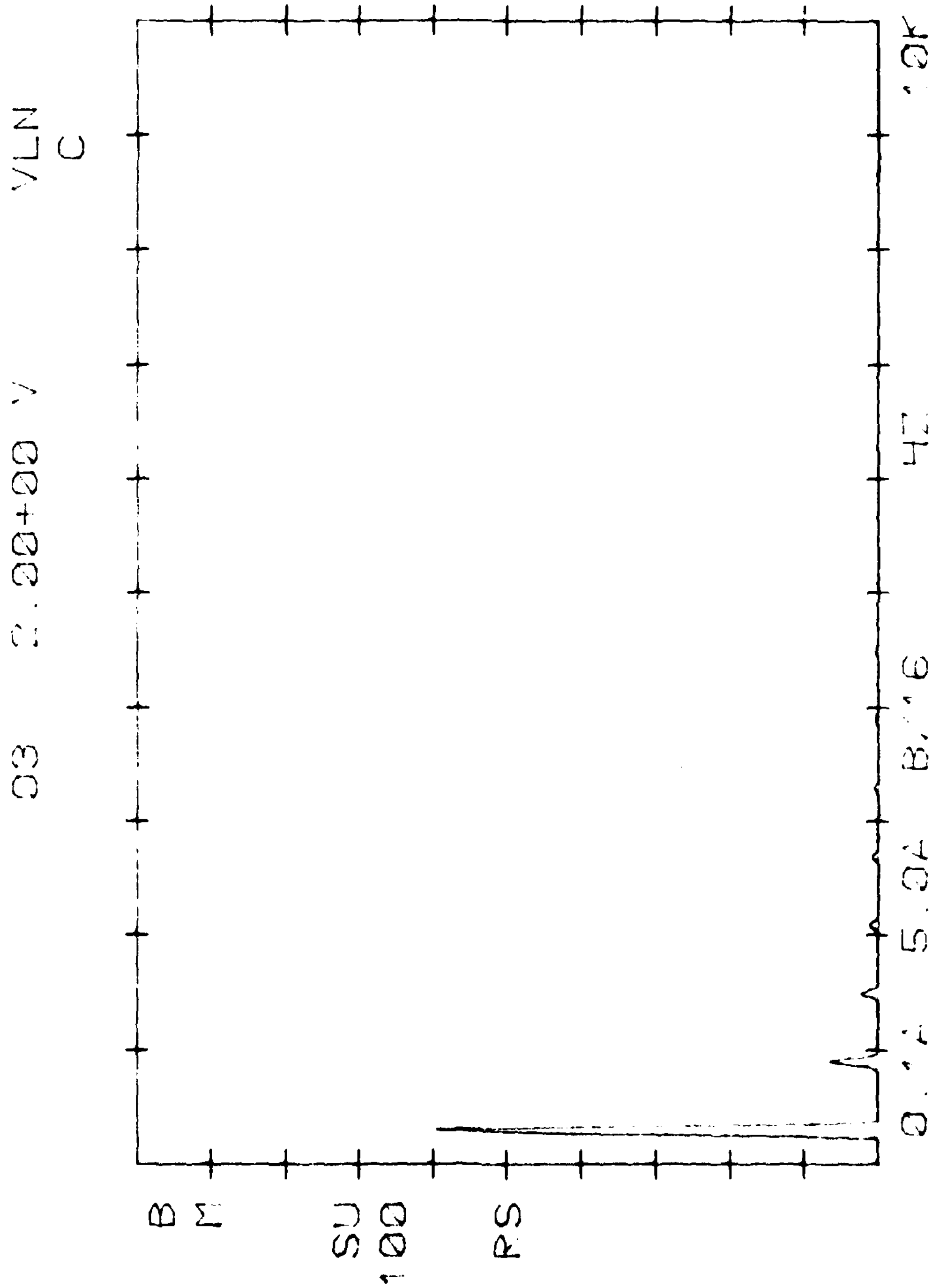


Figure A-6. RMS Spectrum of a Triangle Wave

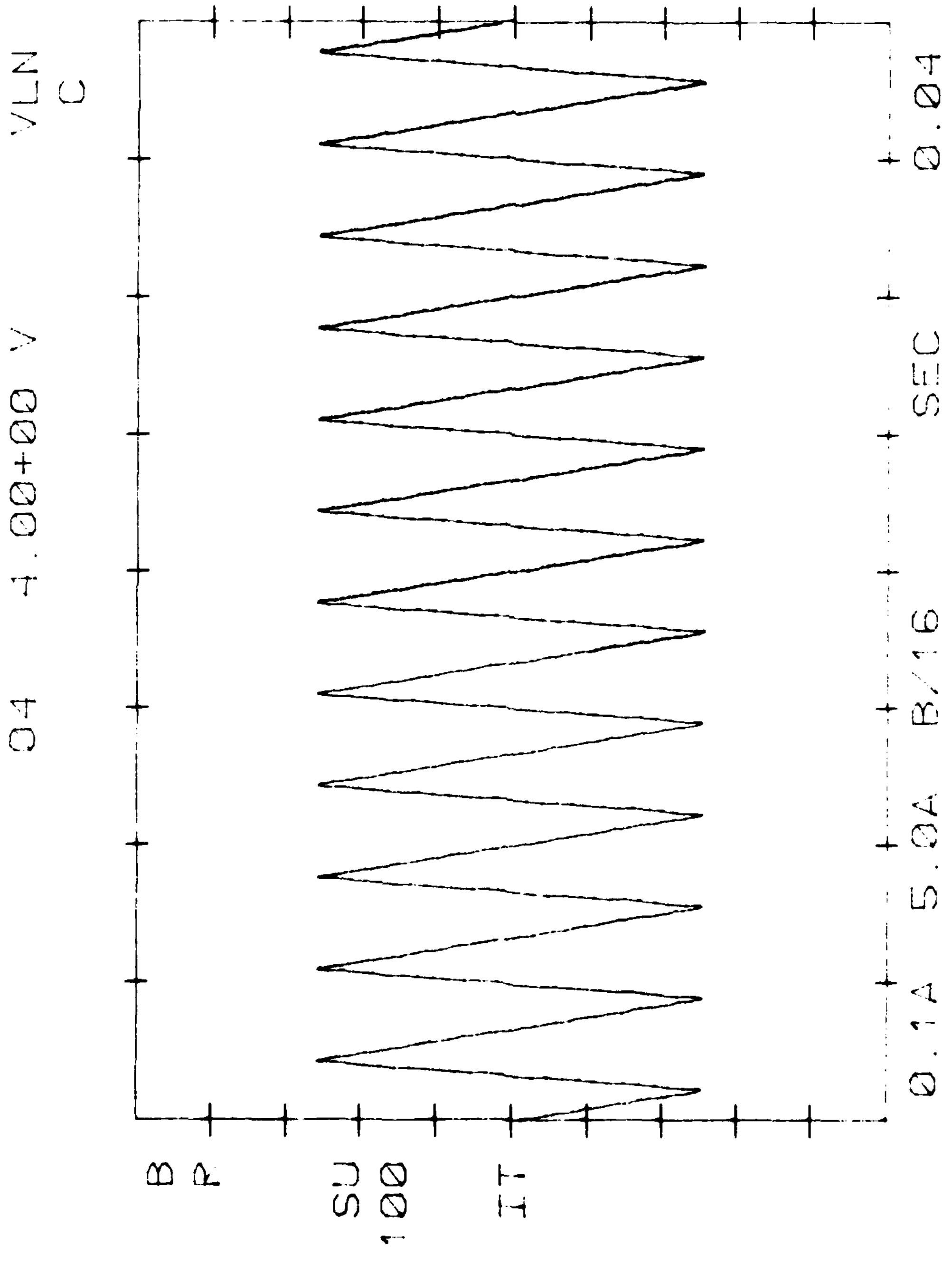


Figure A-7. Uneven 300 Hz Triangle Wave

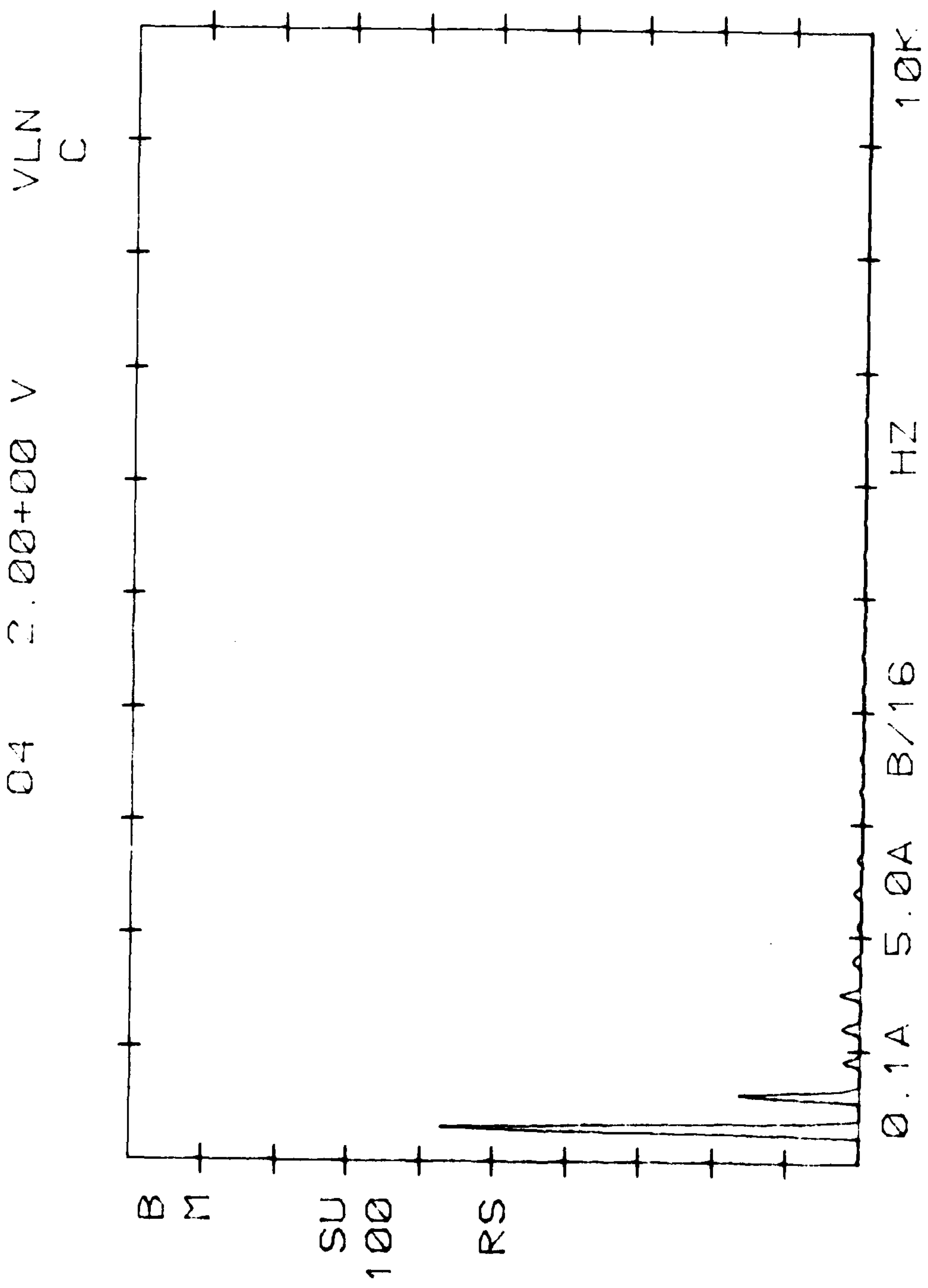


Figure A-8. RMS Spectrum of an Uneven Triangle Wave

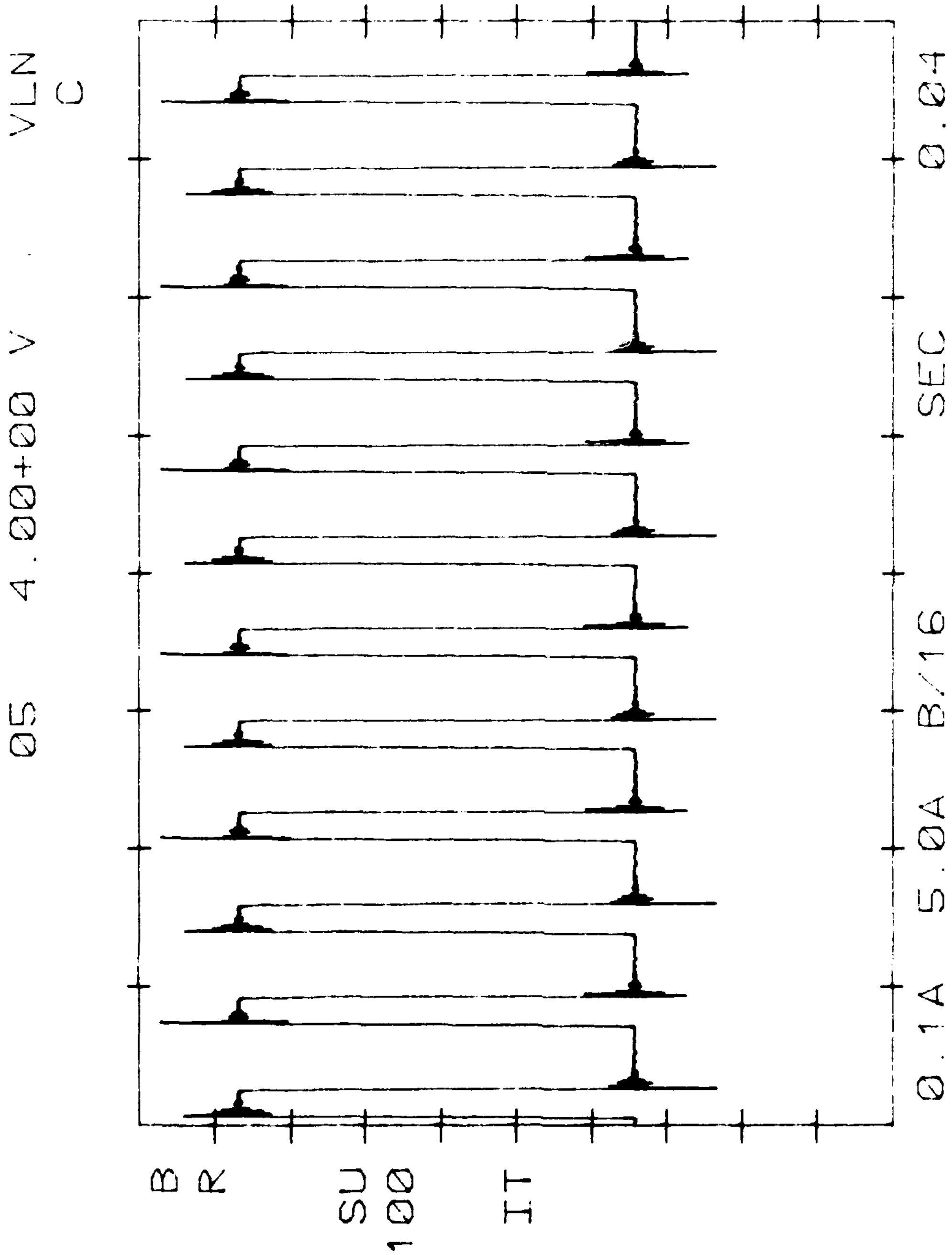


Figure A-9. Uneven 300 Hz Square Wave

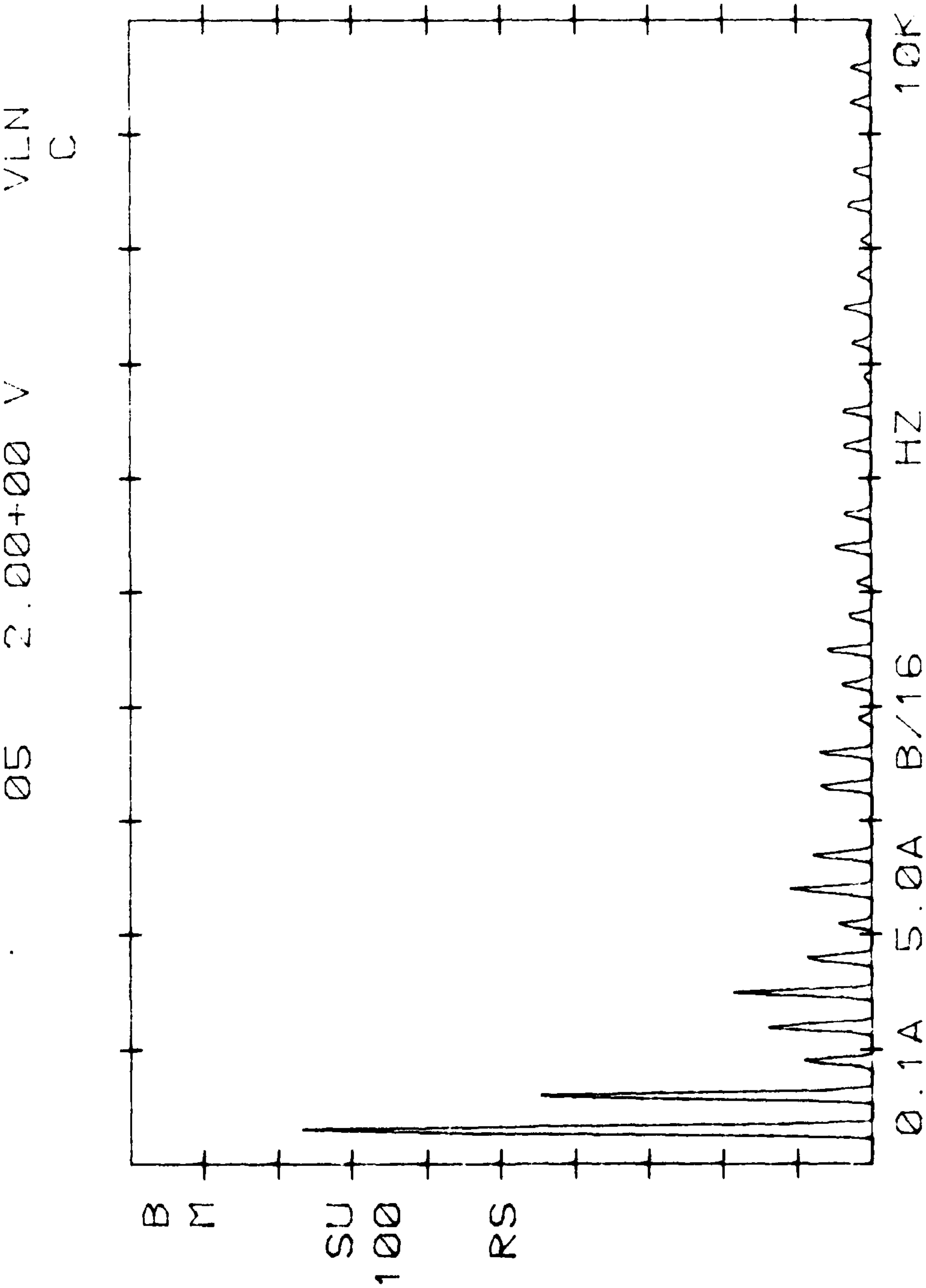


Figure A-10. RMS Spectrum of an Uneven Square Wave

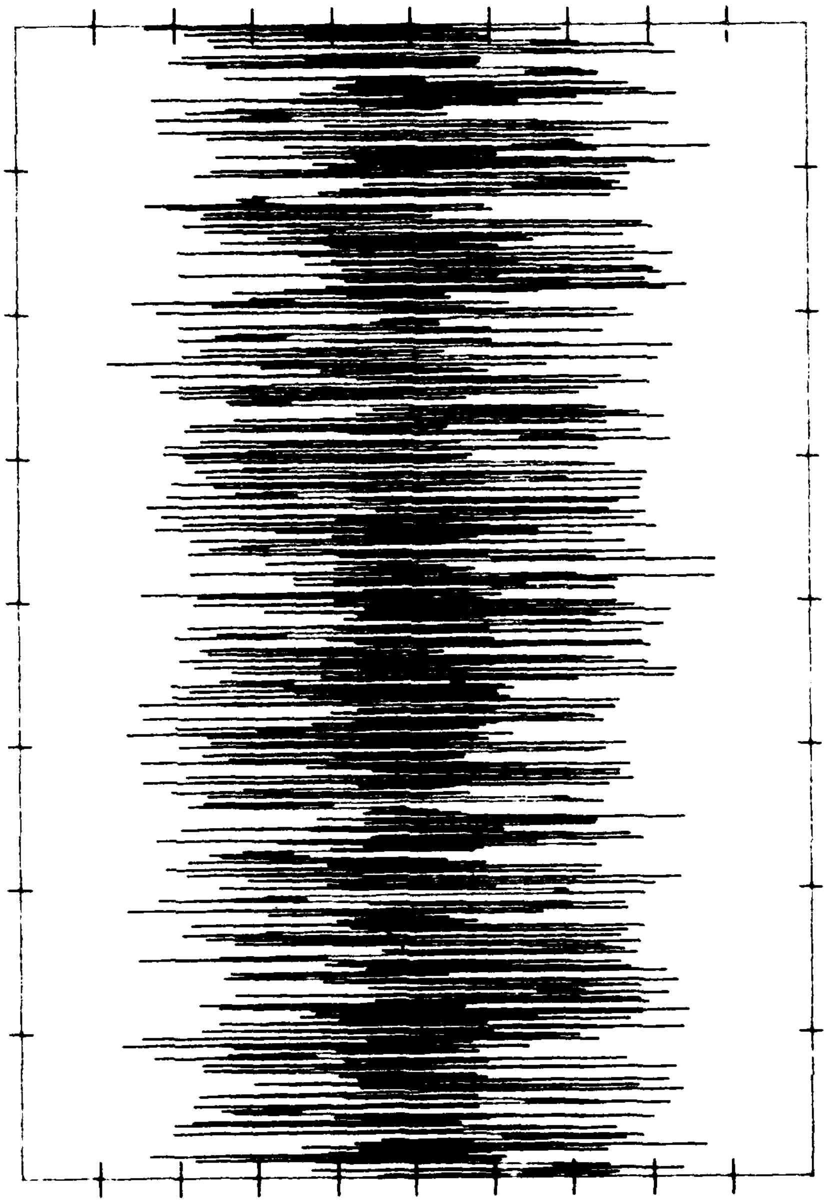


Figure A-11. White Noise

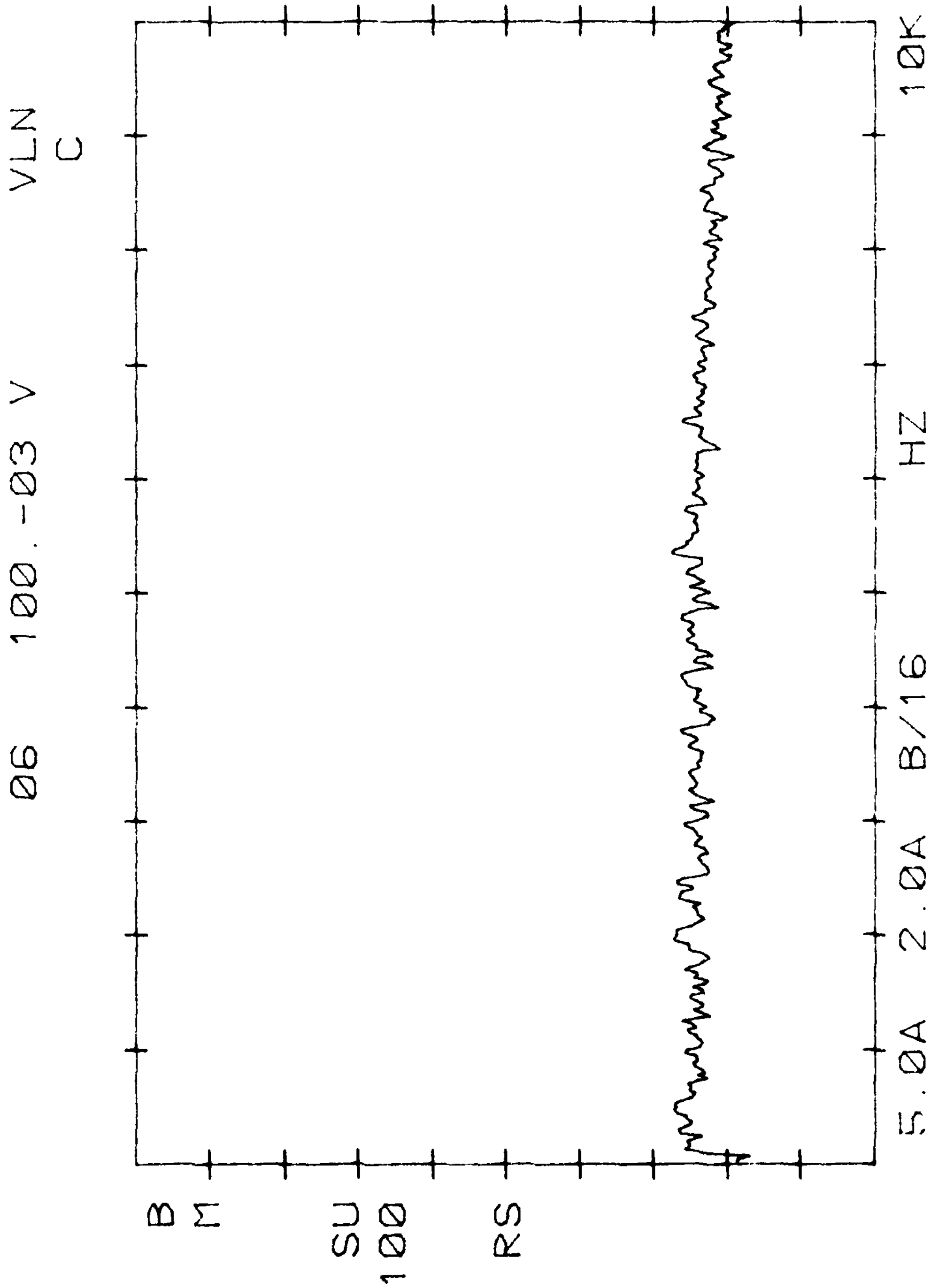


Figure A-12. RMS Spectrum of White Noise

TABLE A-1

RMS VALUES FOR DIFFERENT WAVE SHAPES

300 HZ	1ST HARM.	2ND HARM.	3RD HARM.	4TH HARM.	5TH HARM.	TOTAL RMS	$P_{TO}P$	$\frac{P_{TO}P}{TOTAL\ RMS}$
SINE WAVE								
1KHZ FULL SCALE	1.41	.002	.002	NA	NA	1.47	4.13	2.81
10KHZ FULL SCALE	1.47	.002	.004	.001	.002	1.47	4.14	2.82
SQUARE WAVE								
1KHZ F.S.	1.74	.003	.635	NA	NA	2.01	4.67	2.32
10KHZ F.S.	1.89	.002	.623	.002	.366	2.09	4.21* 5.93	2.01 2.84
UNEVEN** SQ. WAVE								
1KHZ F.S.	1.50	.849	.194	NA	NA	1.81	5.70	3.15
10KHZ F.S.	1.54	.896	.187	.283	.375	1.92	4.22* 5.92	2.20 3.08
RAMP WAVE								
1KHZ F.S.	1.12	.002	.140	NA	NA	1.20	3.67	3.06
10KHZ F.S.	1.19	.001	.133	.001	.047	1.21	4.10	3.39
1KHZ F.S.	1.12	.319	.041	NA	NA	1.20	3.60	3.00
10KHZ F.S.	1.15	.335	.047	.053	.057	1.20	4.09	3.41
BINARY NOISE				RMS (N=5) TOTAL RMS	IS TOTAL RMS	N=100 TOTAL RMS		
1KHZ F.S.				.338	.329	.335	1.4	4.18
10KHZ F.S.				.337	.344	.339	1.23	3.63

*EXCLUDING THE TRANSIENT PEAKS
**.001 SEC RISE OR POS TIME AND .002315 SEC FALL OR NEG TIME

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